GAS

ENGINEERING • UTILIZATION • LOAD-BUILDING • MANAGEMENT

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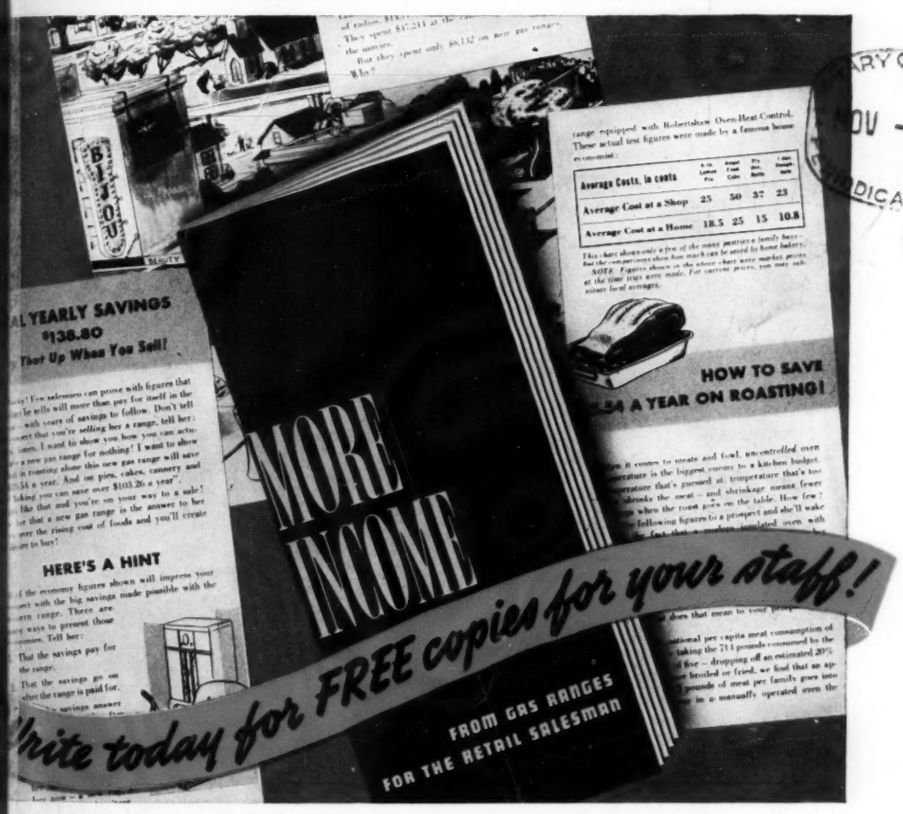
9629

HERE'S MORE INCOME FROM GAS RANGES FOR YOUR SALESMEN!


MORE INCOME
Write today for FREE copies for your staff!
FROM GAS RANGES FOR THE RETAIL SALESMAN
HOW TO SAVE
A YEAR ON ROASTING!
HERE'S A HINT

New as it is, this sales manual has already become the most used and best liked of all Robertshaw's range-selling tools. It is today standard equipment for thousands of salesmen, inspiring them with wholehearted enthusiasm, giving them new ideas which they can convert into bigger sales.

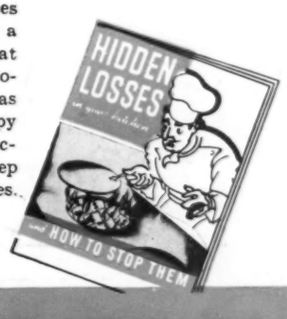
WHAT SALES EXECUTIVES ARE SAYING

"Hearty commendation!" . . . "Treasure chest of concise factual information!" . . . "Excellent!" . . . "Much impressed!" . . . "Covering complete sales picture!" . . . "Received by salesmen eagerly, enthusiastically!"..."Should increase our sales materially!" . . . "Compliments for achievement!" . . . "A contribution to the building of the industry!"

More Income is to the point, gives the salesman a whole battery of facts in the briefest possible form, shows him how to bring those facts to bear in order to overcome every type of sales resistance. Here are some of the subjects treated:

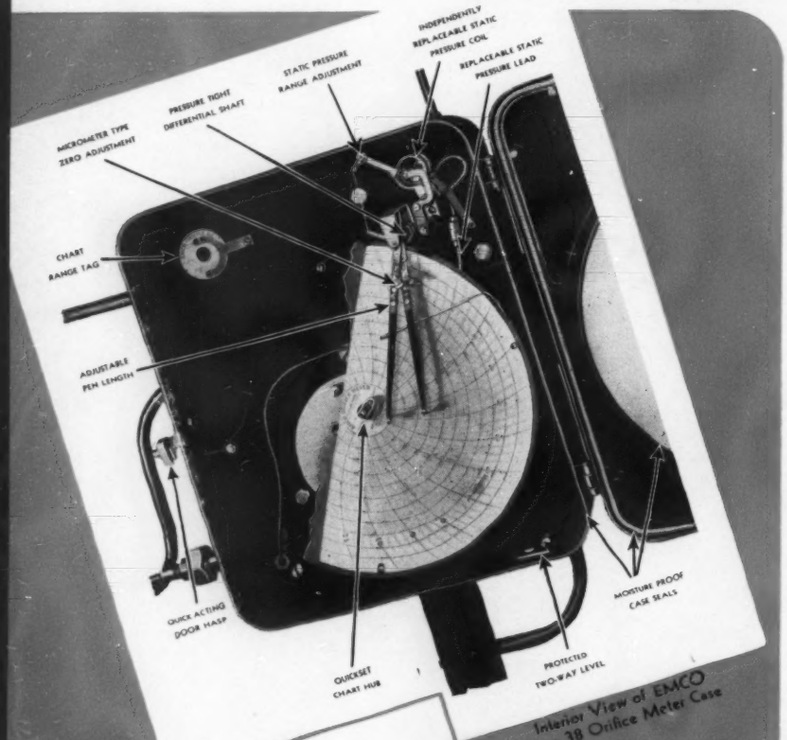
Picture of your prospects, Who they are and where they are; **Picture of their motives,** Why they buy and why they don't; **Picture of their minds,** What they know and don't know about gas ranges; **Picture of gas range selling,** How to improve your selling score; **What chance have you** to make record sales this year?; **And now let's take a look** at the average kitchen; **How women can save money** with oven-heat-control; **Facts on baking; Facts on roasting.**

For commercial appliances **Hidden Losses** is doing a job comparable to that which **More Income** is doing for the domestic gas range. Send for a free copy and you'll see how effectively you can use it to step up your commercial sales.

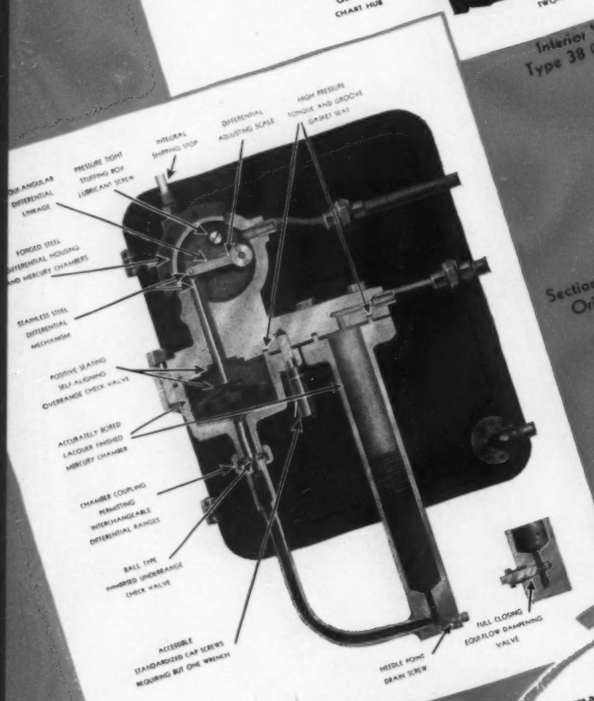


ROBERTSHAW THERMOSTAT COMPANY
YOUNGWOOD, PA

Outstanding Features
OF THE EMCO TYPE 38 ORIFICE METER



Interior View of EMCO Type 38 Orifice Meter Case



Sectional View of 100" EMCO Orifice Meter Manometer

DESIGN SIMPLICITY—Entire meter can be taken apart or built up with a 6" Crescent wrench and screwdriver.

FORGED STEEL MERCURY CHAMBERS AND DIFFERENTIAL HOUSING—Fabricated from high grade alloy steel forgings—eliminate porosity of castings, blow holes, and other possibilities of leaks or failure.

UNIT MANOMETER CONSTRUCTION—Quickly convertible from one pressure range to another.

TIGHT SEATING CHECK VALVES—Most positive, reliable and easiest to service.

ALL-WEATHER, MOISTUREPROOF METER CASE—Fitted with heavy door hinges, quick acting, angular type door hasp. Baked enamel finish.

LONG HELICAL COIL TYPE STATIC PRESSURE ELEMENT—Especially developed for Orifice Meter measurement. Made from corrosion-resisting alloy and thoroughly aged to insure long life. Entirely accessible and fitted with two adjustments.

EQUI-ANGULAR DIFFERENTIAL MOVEMENT—Eliminates the "angularity error" common to most previous types of meters. Is easy to remove for cleaning and inspection. All parts are made of stainless steel.

QUICKSET CHART HUB—Greatly simplifies changing charts. Unit construction eliminates possibility of lost or misplaced parts.

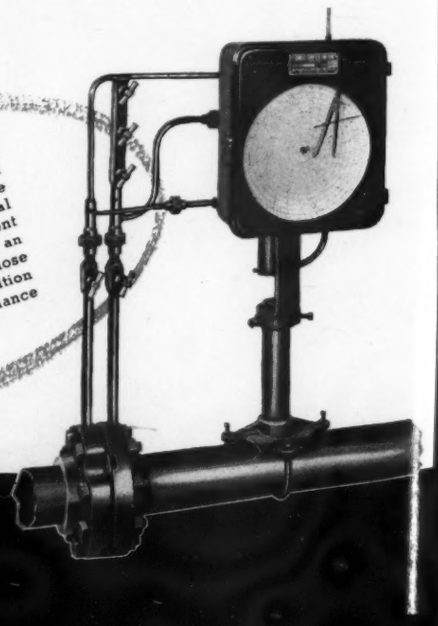
FULL CLOSING EQUI-FLOW DAMPENING VALVE—Provides equal resistance to mercury flow from either chamber. Eliminates false readings, due to rapid change of flow.

STAINLESS STEEL PEN ARMS—Painted in different colors to readily distinguish between static and differential. Each arm quickly detachable and fitted with simple micrometer adjustment.

ALL-WELDED MANIFOLD—Eliminates numerous small leaks encountered in screwed piping. Made of high grade steel tubing for working pressures up to 4,000 pounds.

You can get the complete story describing the EMCO Type 38 Orifice Meter from Bulletin 1050. Write for a copy today.

Experience extending over many years in the design, manufacture and use of equipment for fluid measurement and control is reflected in the design of the EMCO Type 38 Orifice Meter. Suggestions received from practical orifice meter men have been combined with measurement technique developed by EMCO engineers to produce an orifice meter that not only meets with the approval of those responsible for measurement, but also those whose position it is to keep maintenance at a minimum and performance at a maximum.



PITTSBURGH EQUITABLE METER COMPANY
MERCO NORDSTROM VALVE CO.
NEW YORK · BUFFALO · PHILADELPHIA · KANSAS CITY · TULSA · LOS ANGELES
Main Offices - PITTSBURGH, PA
DES MOINES · CHICAGO · COLUMBIA · MEMPHIS · OAKLAND · HOUSTON

Are your FUEL COSTS RISING?

THEN YOU SHOULD INVESTIGATE THE SEMET-SOLVAY REVERSE FLOW WATER GAS PROCESS . . .

THE SEMET-SOLVAY Reverse Flow Water Gas Process will not prevent fuel and oil *prices* from rising, but quite likely it can prevent your fuel and oil *costs* from rising, or at least keep the increase in costs to the irreducible minimum.

USING THE SEMET-SOLVAY Reverse Flow Water Gas Process in either a new or converted machine you can switch at will from coke to bituminous coal or to any combination of the two. You can use Gas Oil or Bunker C Oil as market conditions indicate. You can shop around for fuel and oil without being limited by the inability of your equipment to handle whatever fuel or oil is the best "buy."

INVESTIGATION may prove that you can not afford *not* to put this advanced process to work for you. Why not write today for further information? Semet-Solvay Engineering Corporation, 40 Rector Street, New York, N. Y.

SEMET-SOLVAY REVERSE FLOW WATER GAS MACHINES

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GAS

Fifteenth Year of Publication

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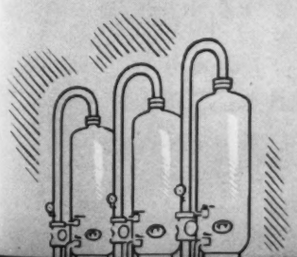
In INDUSTRY as well as in the HOME...
CLEAN GAS MAKES SATISFIED CUSTOMERS

Let Gas flow smoothly, silently, unfailingly and industrial customers find their production moves along like a song. And you find service costs fall to an all-time low. But, of course, these things happen only when Gas is *clean*. Today's small machine apertures, finely adjusted meters make that necessary. So follow in the footsteps of Operating Engineers from coast to coast. Pave the way for success in the industrial field by turning to the Gas Cleaners that never fail—Blaw-Knox Gas Cleaners. Start now and see for yourself that "as GAS flows, demand grows".



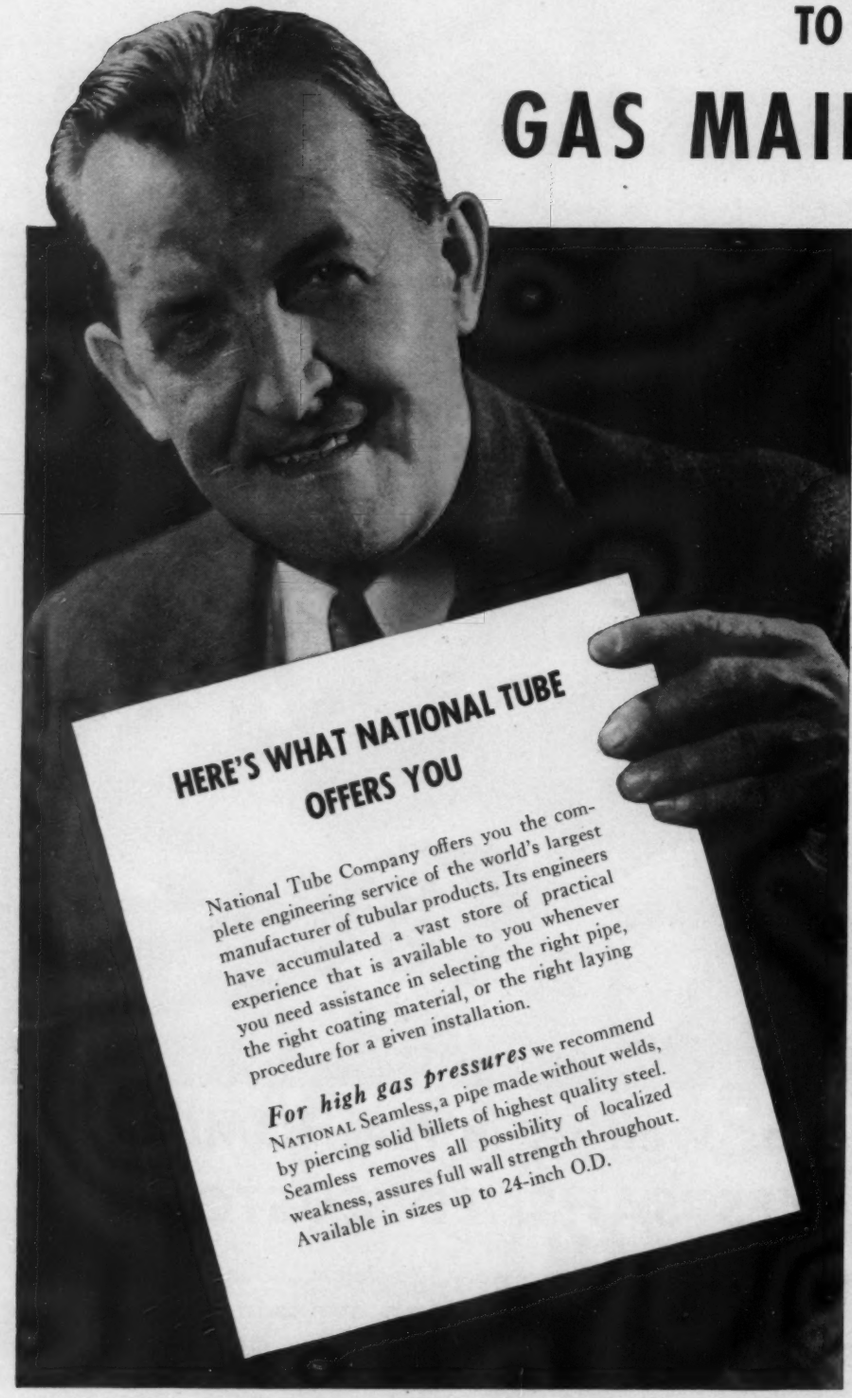
BLAW-KNOX
GAS CLEANERS

BLAW-KNOX DIVISION of Blaw-Knox Company FARMERS BANK BLDG. PITTSBURGH, PA.

Let STEEL *Supply the Answer*

TO YOUR

GAS MAIN PROBLEM


HERE'S WHAT NATIONAL TUBE OFFERS YOU
National Tube Company offers you the complete engineering service of the world's largest manufacturer of tubular products. Its engineers have accumulated a vast store of practical experience that is available to you whenever you need assistance in selecting the right pipe, the right coating material, or the right laying procedure for a given installation.
For high gas pressures we recommend NATIONAL Seamless, a pipe made without welds, by piercing solid billets of highest quality steel. Seamless removes all possibility of localized weakness, assures full wall strength throughout. Available in sizes up to 24-inch O.D.

The Problem: How to provide adequate gas service that is low in first cost, high in dependability, and low in maintenance expense.

The Facts: To obtain low first cost, you must use easily available, inexpensive materials. To reduce laying costs use pipe that is light and easily handled, pipe that is available in long lengths, and thus requires fewer joints per mile.

To keep dependability high, your gas mains must not be subject to sudden fracture. You can't control earth settlement or traffic vibration, but you can use gas mains that are capable of withstanding this abuse.

Lower maintenance expenses can be achieved only by using gas mains that minimize repairs and damage costs from breakage and that give long service.

The Solution: STEEL Pipe. For STEEL Pipe is the only gas main material that gives you all these features. STEEL is a standard, readily available material. STEEL Pipe is made in lengths that save a number of joints per mile. STEEL Pipe is light and readily handled.

STEEL, in fact, is the toughest and strongest of all gas main materials. It is resilient, bends but does not break when subjected to impacts and vibration. The smooth surface of STEEL Pipe readily adapts itself to protective coatings where soil is extra corrosive.

Write for complete information on NATIONAL STEEL PIPE for gas mains.

NATIONAL TUBE COMPANY

PITTSBURGH, PA.

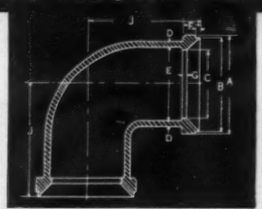
Columbia Steel Company, San Francisco, *Pacific Coast Distributors* · United States Steel Products Company, New York, *Export Distributors*

UNITED STATES STEEL

Dayton BOLTLESS FITTINGS

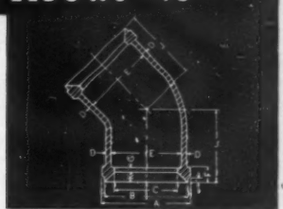
These fittings have been developed for the purpose of relieving strain on mains at the service connection . . . We recommend the use of Dayton Boltless Fittings as an aid in the elimination of troublesome leaks in sections where heavy frosts are a hazard or where operating conditions demand flexibility.

No. 21 BOLTLESS TYPE ELBOWS—90°



I.D.	A	B	C	D	E	F	G	J
1¼	2.437	2.312	1.750	.125	1.937	.437	.125	2.500
1½	2.750	2.625	2.000	.125	2.125	.500	.125	2.750
2	3.437	3.312	2.469	.156	2.625	.500	.125	3.250

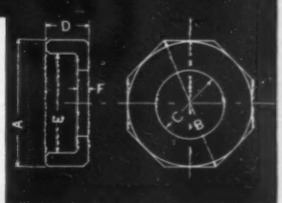
No. 20 BOLTLESS TYPE ELBOWS—45°



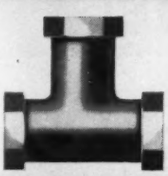
I.D.	A	B	C	D	E	F	G	K	J
1¼	2.437	2.312	1.750	.125	1.937	.437	.125	.281	2.00
1½	2.750	2.625	2.000	.125	2.125	.500	.125	.312	2.00
2	3.437	3.312	2.469	.156	2.625	.500	.125	.422	2.50

FLANGES FOR DAYTON BOLTLESS FITTINGS

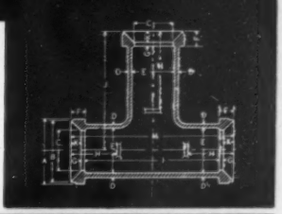
I.D.	A	B	C	D	E	F
½	2.000	2.165	.906	.750	1.469	.187
¾	2.125	2.300	1.125	.750	1.687	.187
1	2.375	2.570	1.437	.750	1.937	.187
1¼	2.750	2.975	1.750	.750	2.313	.187
1½	3.063	3.313	2.000	.875	2.625	.250
2	3.875	4.194	2.469	.875	3.313	.250



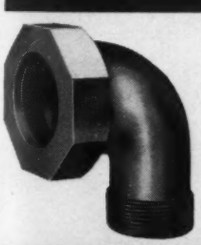
No. 19 BOLTLESS TYPE TEES



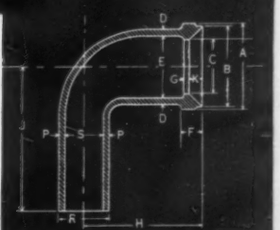
I.D.	A	B	C	D	E	F	G	H	I	J	K	M
1	2.062	1.937	1.437	.125	1.562	.437	.125	1.50	4.250	3.75	.250	5.00
1¼	2.437	2.312	1.750	.125	1.937	.437	.125	1.50	4.188	3.75	.281	5.00
1½	2.750	2.625	2.000	.125	2.125	.500	.125	1.50	4.125	3.75	.312	5.00
2	3.437	3.312	2.469	.156	2.625	.500	.125	2.25	5.404	4.00	.422	6.50



No. 18 COMBINATION SERVICE ELBOWS—90°

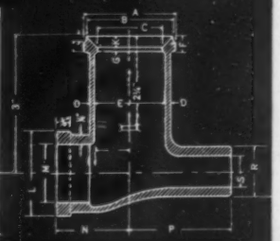


I.D.	A	B	C	D	E	F	G	H	J	K	P	R	S
¾	1.812	1.687	1.125	.125	1.312	.437	.125	2.50	3.00	.250	.125	1.062	.812
1	2.062	1.937	1.437	.125	1.562	.437	.125	2.50	3.00	.250	.125	1.313	1.062
1¼	2.437	2.312	1.750	.125	1.937	.437	.125	3.00	3.00	.281	.125	1.660	1.250
1½	2.750	2.625	2.000	.125	2.125	.500	.125	2.50	3.00	.312	.125	1.906	1.656
2	3.437	3.312	2.469	.156	2.625	.500	.125	2.50	3.69	.422	.156	2.375	2.062



No. 17 COMBINATION SERVICE TEES

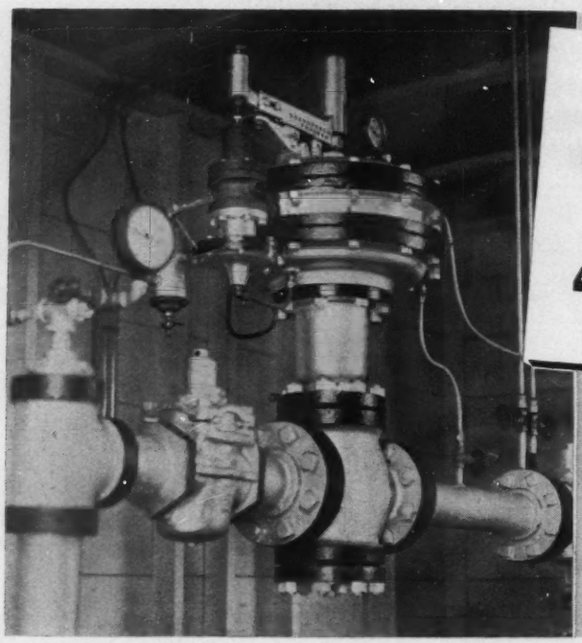
A	B	C	D	E	F	G	PIPE SIZES Female	PIPE SIZES Male	PIPE SIZES Boltless	K	L	M	N	P	R	S
2.750	2.625	2.000	.125	2.125	.500	.125	1	1½	1½	.312	2.062	1.156	1.940	2.690	1.900	1.468
2.437	2.312	1.750	.125	1.937	.437	.125	1¼	1	1¼	.281	2.203	1.515	1.940	2.690	1.315	.844
2.750	2.625	2.000	.125	2.125	.500	.125	1½	1	1½	.312	2.437	1.750	1.940	2.690	1.315	.844
2.750	2.625	2.000	.125	2.125	.500	.125	1½	1¼	1½	.312	2.437	1.750	1.940	2.690	1.660	1.250
2.750	2.625	2.000	.125	2.125	.500	.125	1½	1½	1½	.312	2.437	1.750	1.940	2.690	1.900	1.468
3.437	3.312	2.469	.156	2.625	.500	.125	2	1¼	2	.422	2.937	2.219	2.500	3.125	1.660	1.250
2.437	2.312	1.750	.125	1.937	.437	.125	1¼	1¼	1¼	.281	2.203	1.515	1.940	2.690	1.660	1.250



THE NATIONAL SUPPLY COMPANY

DAYTON COUPLING DIVISION

TOLEDO, OHIO



FISHER-KING GAS PRESSURE BOOSTER "Meets all claims"

Automatically maintains correct pressure on 30 miles of 8 inch line that feeds 3 towns

Ordinarily when a company sets out to automatically control the pressure on a gas line that is 30 miles long and that feeds 3 towns — with the last town at the extreme end of the line — it is up against an extremely **tough** problem. However, the West Ohio Gas Company has successfully solved this very problem through the use of a FISHER-KING Gas Pressure Booster. In addition to overcoming the 30 mile distance from the Booster location to the point of critical control (last town) and the large size of the line, they are maintaining just the right amount of pressure on the line **at the times it is needed.** On this particular line the actual hourly delivery varies from a minimum of 6 M.C.F. to a maximum of 42 M.C.F.

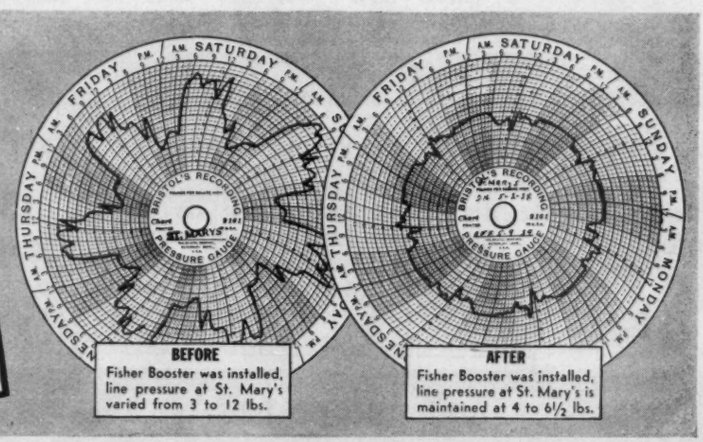
R. L. Lynch, Superintendent, writes, "We are highly pleased with the results. The Fisher Booster is functioning very satisfactorily and is meeting all your claims. We have eliminated four trips daily to the outlying governor house and the line has just the right amount of pressure on it **at the times it is needed.**"

Descriptive Literature Gladly Sent on Request

FISHER GOVERNOR COMPANY • 803 Fisher Bldg., Marshalltown, Iowa

FISHER-KING Gas Pressure Booster does these 3 things for you:

1. *Enables system pressure to be lowered 25% to 50% with corresponding reductions in "unaccounted for" gas.*
2. *Elimnates countless man hours, truck hours, and mileage now devoted to adjusting lever and weight regulators manually.*
3. *Reduces consumer complaints and improves good will because pressures are better regulated according to demand.*



BEFORE Fisher Booster was installed, line pressure at St. Mary's varied from 3 to 12 lbs.

AFTER Fisher Booster was installed, line pressure at St. Mary's is maintained at 4 to 6½ lbs.

PARTNERS IN PROGRESS for more than a century, the gas industry and cast iron pressure pipe makers have steadily improved methods and materials in gas distribution. With higher pressures came the modern bottle-tight mechanical joint. All mechanical joints made by CIPRA members are identical in principle though differing in design—and *all* are *bottle-tight.*

Look for the "Q-Check" registered trade mark. Cast iron pipe is made in diameters from 1¼ to 84 inches.

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CAST IRON PIPE

THE STANDARD MATERIAL FOR UNDERGROUND MAINS

One man, one tool and elbow-room in the trench are all that's required to install the modern gas-tight mechanical joint.

Here is an unretouched photo of a cast iron distribution main installed in Philadelphia more than a century ago—recently uncovered, inspected and approved for further indefinite service.

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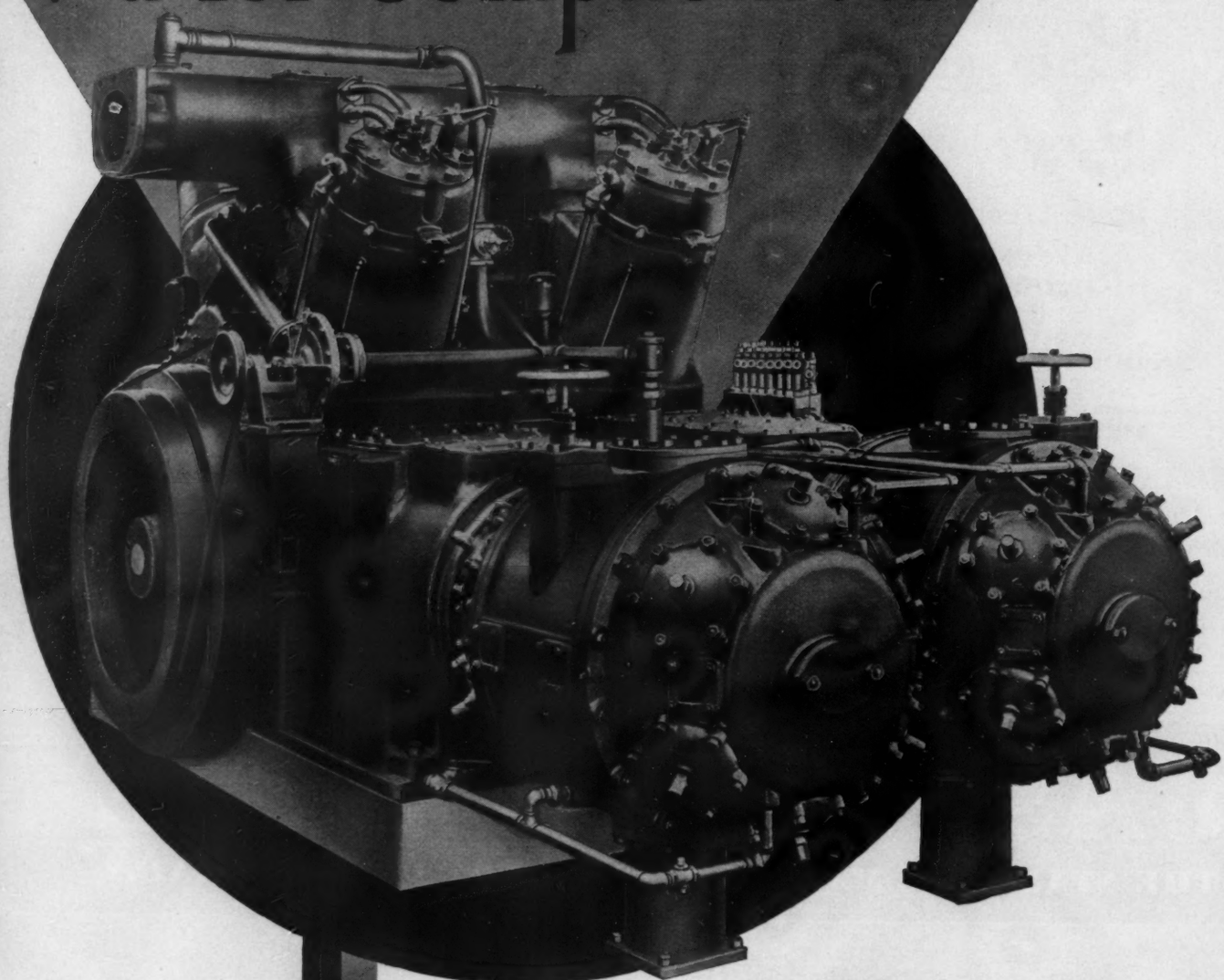

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Type G-MV . . . a gas-engine-driven compressor combining both "V" and "angle" design for true compactness . . . providing nearly twice the horsepower in almost half the space of its predecessors! Housing and foundation costs come down accordingly!

With All These Advantages . . . Lower Capital investment per hp; more hp in far less space; lower installation costs; two-cycle simplicity; choice of 400, 600, or 800 horsepower at conservative speeds; all iron castings of Meehanite Metal; thorough and experienced engineering by Cooper-Bessemer.

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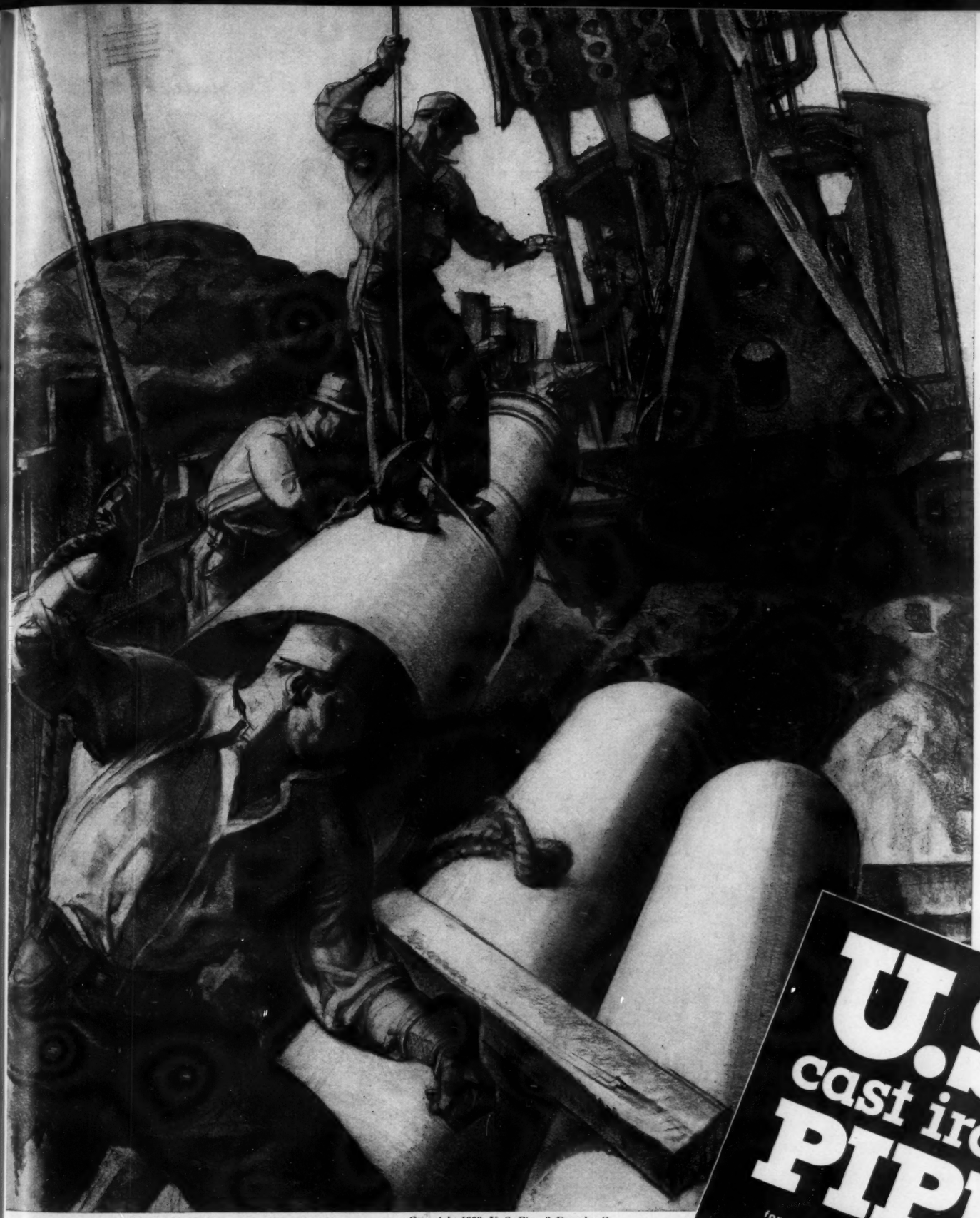

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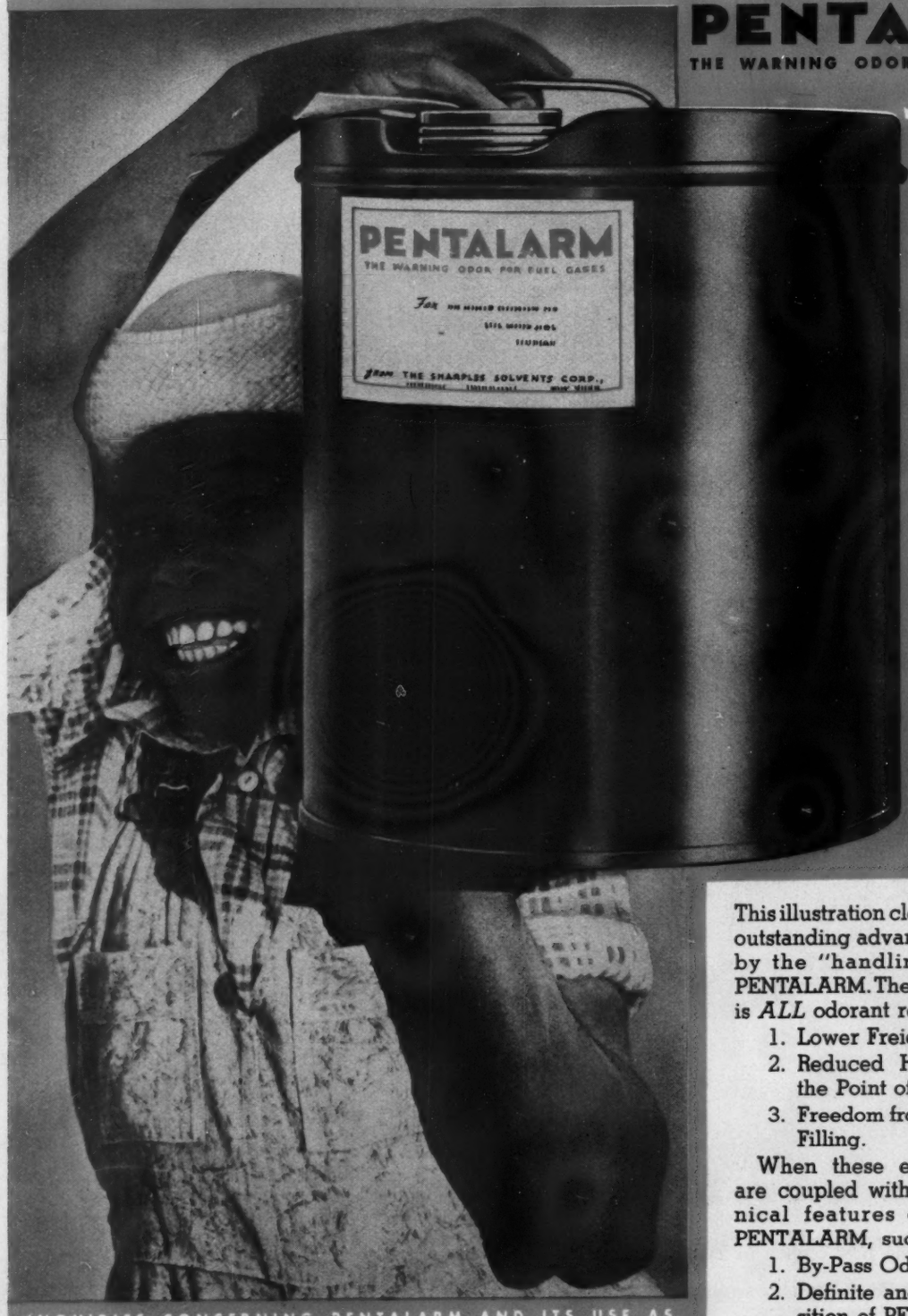

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1. Lower Freight Costs.
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PHILADELPHIA CHICAGO NEW YORK

GAS
NOVEMBER, 1939

GUEST Editorial

A Monument To American Spirit

By E. H. POE

Secretary, Natural Gas Section,
American Gas Association, New York, N. Y.

THE part played by natural gas in the upbuilding of the nation is a story of American intelligence and enterprise. It has been more than a searching for and a discovery of gas fields. It has been the answer to the needs of the people for a more efficient, convenient way of living and it has been brought to a high point of utilization by the ingenuity of the industry, which is the expression of the young, creative mind of America.

Natural gas is the fuel of today. If, in 1621 when the Pilgrims were celebrating their first Thanksgiving on the edge of a great unknown world, natural gas had suddenly emerged from the earth, it would probably have been looked upon as an evil omen. Those few brave souls who had dared to cross a strange ocean of water, who had dared to strike out into an uncharted world, had still to live with their old primitive ways.

Their same unquenchable spirit, however, which is the hope of the world, which drove them to this country, is the same unconquerable spirit which has brought into control one of the greatest of natural resources. As our wants have increased we have gained knowledge, we have attracted capital and we have organized and as a result the natural gas industry has arisen, like the genii, to a size undreamed by its pioneers. The genius of the industry's management, the scientific as well as practical knowledge of exploration, production, transmission, utilization and sales coupled with the trained and loyal personnel which has given the industry its present success, also equips it to meet the challenge for future accomplishment.

The days of proving the feasibility of natural gas are over. Its fuel value is easily determined, its efficiency has been established, its service is continuous and dependable and its cost is reasonable. The future of natural gas is as far reaching as its reserves and that end is not in sight.

In an address before the annual Convention of the Natural Gas Section of the American Gas Association last May, President Conrad N. Lauer had this to say about the gas industry: "If the growth and expansion of the gas industry in the past 20 years can be used as a criterion for planning the future we may expect to retain our dominant position in the nation's business picture. The superior service we render is an inexpensive provider of health, happiness and comfort to our millions of customers and an efficient boon to the technique of industrial planning and manufacturing expansion." This is particularly true of the natural gas industry and is justification for giving thanks for past success and for looking toward an even greater future. The natural gas industry is pledged to avail itself of the opportunities of the future.

• the beginning of a performance record

The industry's predominant use of American Meter Company meters is of course based essentially on their performance records. • And these quality standards . . . made possible through progressive experience of more than a century in gas meter development . . . are insured only by the rigid laboratory control and precision methods maintained throughout every operation and stage of manufacture.

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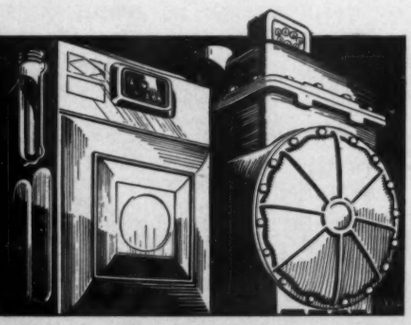


THERMALLY *Thinking*

The Convention

A working pressman has his work cut out to cover a convention like the most recent one in New York. Never a dull moment, unless it comes in the small hours of the morning, when the night owls are still hooting, and the horrible thought of the clear brain and steady hand needed for the next day's activities crops up. However, it is on such occasions that human endurance is on test, and it is really remarkable what you can do when you must.

The story of the convention, such as it can be told within our space limitations, appears on page 23.

It was a good convention. A new attendance record was established for A.G.A. conventions without manufacturers' exhibits. There were no major casualties. The sessions were well attended and the speakers to the point. War problems were naturally to the fore and it seems fundamental from the discussions we heard that the gas industry is geared "to do its bit," no matter the cost, as an integral industry in the nation's welfare. May the public appreciate this attitude and not allow political lassitude to strangle its right to a fair return for its efforts, should the war become an active reality in our midst.

Research

Constant readers of this column know how *G A S* feels about the need for special research within the gas industry. We are for it, and are completely in accord with the program outlined by Chairman Frank C. Smith, Houston, Texas, in his report of the special committee on fundamental research. Compared with the rewards, the proposed expense is modest to say the least, and to be brutally frank, only those who are sublimely complacent or those who cannot see wood for trees are going to oppose the idea. We predict there will be no opposition once the full potential benefits of the program are appraised.

The gas industry is no exception. The bountifulness of this American continent of ours has made us prodigal in our methods. The wolf has never knocked at our door loudly enough to shock us into the realization that the American treasure chest was not bottomless. Waste today is a crime committed against the tomorrows, and can no longer be condoned by apathy.

In our several limited ways, we have studied this and that and undoubtedly made economy of operation our goal. But, as individuals the best we have or can do is really puny compared with what can be done, when the industry pools its resources and devotes thousands of pooled dollars, where one individual dollar has been available before, to solve fundamental questions of production, distribution and utilization.

The British, as pointed out by Mr. Smith, have long recognized that the manufactured gas industry is essentially a chemical industry. And those of us who are familiar with their methods know the extent of their by-product production alone, and the economic values they have built into their industry from these sources alone.

Maybe, from our own research, will come the ways and means to make another dream of this column come true, and that is a greater standardization among gas companies to take a terrific load off the innocent shoulders of appliance manufacturers.

Wall Street Takes Notice

The significance of the article on the gas industry which appeared early in September in *The Index*, published by the New York Trust Co., was not the text of the story itself, but the fact that a prominent financial institution like the New York Trust Co. should endorse the gas industry so signally. We in the industry know our merits. We know how fundamentally sound the gas industry is, thanks to experienced and intelligent management and the deeply-embedded economic justification it has in American life. Those of us who know a real investment when we see one, and refuse to be dazzled by the glamor boys, who have been labelling us obsolete since Edison invented the electric lamp bulb, have known all along that there are few industries which equal the gas industry for sound investment.

In this column we have consistently urged that telling ourselves these basic truths is insufficient. The investing public, and those who influence it, must be told too, for new capital is the lifeblood of a public utility industry.

We know who initiated the idea of going to investment circles with our story. The credit for it is immaterial. The all-important results count, and we congratulate the A.G.A. publicity staff on its efforts, which are now bearing fruit.

Glorifying CP

As Winchell would say, orchids to Clayton Cassidy, advertising manager, Peoples Gas Light & Coke Co., Chicago. We have in mind the new booklet "The Easy Way to Cook Well," which glorifies the modern gas range, culminating with the range of ranges — CP.

So much advertising we see is just "Fancy Dan" stuff with type, color and illustrations artistically blended, but more fitted for display in an art gallery than to the commercial process of creating business. When you have said it is pretty, you have about said all. The Cassidy opus is artistic, in truth, but it has the distinctive merit of telling its story entertainingly and creating a deep desire to own a modern gas range. The booklet is considerably enhanced by the clever cartoons of Ray Fenton, veteran cartoonist of the Peoples Gas Light & Coke Co. and whose whimsicalities with the pen were never better displayed than they are in "The Easy Way to Cook Well." (Turn to page 27.)

Average Intelligence

Some years ago, we remember reading that our Hollywood moguls, in judging the intellectual depths of their pictures, worked on the basis that the average mentality approximates that of a 14-year-old child. All advertising men are well aware of the danger of over-estimating the capacity of their public to absorb their message. It is surprising at times how little some seemingly intelligent people really know.

One of our publicity friends makes a special point of listening in to radio quiz programs to keep himself in perspective. But he confesses he was completely flabbergasted when a seemingly intelligent member of a Pittsburgh cinema audience kicked away nine silver dollars by being unable to define "arms embargo" while it was splattered in headlines in every newspaper in the country.

Accordingly, we shudder often when we read some of our own elementary technical terms so blithely used in advertisements for our non-technical customers.

Customers Are In Business, Too

Truth may be the first casualty in war, but the second is normal business. An admitted weakness of a democracy is its inability to fight a war as a democracy and, in junking the democratic process for the duration of the war, the big danger is that many a hard-earned right may be taken away permanently. During the last war, for the first time we were saddled with a bureaucracy which, once started, has grown and grown. The last war gave it its start. Another war would be calamitous, unless we recognize the danger, and act accordingly.

Business, the present chopping block of Washington, can expect to be hamstrung very effectively if a war emergency provides the opportunity for some of our shock-haired revolutionists in inner governmental circles to swing their axes. The only defense we have is an aroused public opinion. Perhaps we have enhanced our vulnerability by spending our advertising dollars to a great extent on so-called "customer" advertising. The thought is that it might be a mistake to be telling people they are "customers." Of course they are. They know it, but, no matter what their job may be, so long as they are working, or clipping coupons, they are business people too. The source of their income, unless they are government employes or on the dole, makes them business people like ourselves. As such, and our job might well be to prove it to them, their interests as business people agree with ours. Anything they do as "customers" that is detrimental to business in general is really injurious to themselves as business people.

We might have to accept wartime regimentation, but, the more we can convince people that cutting off one's nose to spite one's face will be the core of much of the legislation that will inevitably be proposed, the less chance there will be of our awakening some morning to find that we have been voted into a permanent strait-jacket.

'Tain't So

GAS hates to contradict a lady, especially such a charming one and good friend of the gas industry as Miss Kathleen Robertson, staff writer on home economics for *McCall's* magazine. But duty is duty, and must be faced.

In the November issue of *McCall's*, Miss Robertson has a very illuminating article entitled "What Gas Appliance Are You Buying?" It is in question and answer form, and with one exception, excellent. It is the exception to which we point, like the army sergeant who counted all the misses and none of the hits. Writes Miss Robertson:

> Q. "Which is the cheapest way to heat water by gas?"
> A. "A hand-operated heater that is run only when needed."

'Tain't so, dear lady. In fact, it is just the opposite, for the manually operated tank heater, which so obviously you have in mind, is less than half as thermally efficient as a modern automatic insulated storage gas water heater, which means that gallon for gallon of water heated, the tank heater uses at least twice as much gas.

The real answer is that, because of its unavailability, the customer uses much less gas heated hot water, and therefore finds the monthly expense less, but should she use the same amount she pays considerably more and still lacks the convenience and dependability that the automatic heater provides.

POTENTIALITIES OF FUTURE GAS PRODUCTION COSTS

IN an endeavor to determine whether there is some possible method of manufacturing gas at a lower cost than existing standard methods, an academic study was made of the possibilities of several methods.

The object of this study was to calculate the operating results that may be obtained and to determine whether an appreciable reduction in production costs is possible. The several methods studied and the conclusions arrived at are as follows:

Complete Gasification of Coal. The conclusions from this study were:

1. That the complete gasification of coal in a water gas machine with the recovery of all the volatile constituents in the coal should reduce gas production costs about 1.5 cents per M.

2. That to recover all the volatile constituents from coal when used in a water gas machine would require structural changes.

3. That it is doubtful whether a saving of 1.5 cents per M is sufficient to justify the cost of the necessary structural changes.

4. That there would be insufficient heat in the hot gases to carbonize coal in a carbonizing chamber.

Preheating Generator and Carburetor Air to 1000° F. Conclusions in this instance showed:

1. That preheating the generator and carburetor air to 1000° F. should show a saving of approximately 6.95 lbs. of generator fuel per M of 520 B.t.u.

LEON J. WILLIEN

LEON J. WILLIEN, chief gas engineer for the Public Utility and Engineering Service Corp., of Chicago, has long been considered an authority on manufactured gas production, and his present contribution is particularly timely in view of present unsettled world conditions in which fuels play such an important part. Mr. Willien's report, which was presented before the American Gas Association's Annual Convention in New York, October 9-12, is concerned with the current need for reviewing gas manufacturing methods in a search for improved practices and lower production costs with greater economy of raw materials. The keynote to future potentialities of manufactured gas were aptly expressed (in G A S, Guest Editorial, June, 1939) by E. L. HALL, vice president of Portland Gas and Coke Co., Portland, Ore. In concluding his treatise, Mr. Willien quotes Mr. Hall as follows:

"In fully utilizing all of the opportunities for processing raw materials to the greatest economic value, lies the key in successfully maintaining the relative thermal advantage of the gas plant over the generation of electricity from water power.

"In this age of separating and re-combining atoms and molecules, including such operations as cracking, polymerization, cyclization, alkylation, isomerization, hydrogenation, etc., there doesn't seem to be any limit in sight for the production of new and valuable products from gas making materials."—(Abstract by G A S.)

2. That with coke at $7.00 per ton this saving is equivalent to 2.42 cents per M.

3. That to preheat the generator and carburetor air to 1000° F. with the sensible heat in the stack gases would require a heat exchanger that operates at an efficiency of 72 per cent.

4. That the same amount of heat recovered in a waste heat boiler at the same efficiency will generate 27.3 lbs. steam at 100 lbs. gage pressure. With steam at 40 cents per 1000 lbs. this represents a saving of 1.1 cents per M of 520 B.t.u. gas.

5. That preheating the generator and carburetor air appears to have possibilities of a greater reduction in gas production costs than a waste heat boiler.

Using Oxygen in a Water Gas Machine. Substituting oxygen for generator and carburetor air; using oxygen and steam in a producer and enriching the gas with butane.

This investigation indicated:

1. That to use oxygen as a substitute for generator and carburetor air in a water gas machine, it must be available at a price less than 4.25 cents per M or $1.02 per ton in order to show a saving in gas production costs over present operation.

2. That to use oxygen and steam in a producer and enriching the resultant gas with butane, it must be available at a price less than 14.6 cents per M or $3.50 per ton.

Synthesis of Gaseous Hydrocarbons at High Pressure. The following conclusions were reached:

1. That if hydrogen in blue gas is used for hydrogenation, a maximum of 465 B.t.u. gas would be obtained.

2. That the total fuel required would be 56.87 lbs. per M.

3. That the fuel cost would be greater than fuel and oil cost with present operation.

4. That oil is a cheaper enricher than coke or coal hydrogenated in the manner outlined.

Combining Blue Gas Operation with Oil Cracking: E. A. Dieterle and the author presented a paper on this at the Gas Production and Chemical Conference in 1937. The proposed operation consisted in utilizing the heat developed during the blow period in an oil cracking plant, cracking the oil into gasoline, oil gas and heavy residuum

TABLE NO. 1. COLD ENRICHMENT

Oil Cracked	*Gas Oil*		*25 API Fuel Oil*		*9 API Fuel Oil*	
Operation	*No Steam*	*With Steam*	*No Steam*	*With Steam*	*No Steam*	*With Steam*
Oil Cracked/M Blue Gas, Gals.	11.0	19.0	10.5	18.3	7.3	12.7
Oil Gas Produced, Cu. Ft.	134	232	216	377	118	206
Total Gas Produced, C. F.	1,134	1,232	1,216	1,377	1,118	1,206
Total Gas B.t.u./Cu. Ft.	442	526	513	626	458	555
Oil Cracked, Gals./M Total Gas	9.7	15.4	8.7	13.3	6.5	10.1
Fuel Lbs./M Total Gas	26.5	27.0	24.6	24.4	26.8	27.0
Gasoline, Gals./M Total Gas	8.5	14.8	6.8	11.9	2.7	4.7
Coke Made Lbs./M Total Gas	14.2	24.6	17.6	30.6	34.7	60.5
Extra Coke Required, Lbs./M Total Gas	12.3	2.4	7.0	−6.2	−7.9	−33.5

oil or coke; selling the gasoline and residuum oil and using the oil for enriching the blue gas; and if coke were made, using it for generator fuel.

The results that may be expected by combining blue gas operation with oil cracking were calculated. These results are given in Table No. 1. They are based upon using coke as generator fuel with and without steam during the blow and using the oil gas made to enrich the blue gas by cold enrichment.

A study was also made on reforming the oil gas by the U.G.I. Reforming Process as used at Chester, Pa. According to a paper on the Chester operations in the 1930 A.G.A. Proceedings, 259 cu. ft. of 1575 B.t.u. oil refinery gas and 11.89 lbs. coke are used per M of 520 B.t.u. gas. An analysis of the data given in this paper indicated that the final 520 B.t.u. gas contained about 50 per cent of 770 B.t.u. reformed gas and 50 per cent of 265 B.t.u. blue gas. It also indicated a swell of 1.93 in the oil gas in the reforming process. It was calculated that 272 cu. ft. of 1500 B.t.u. oil gas or 226 cu. ft. of 1800 B.t.u. oil gas would be required per M of 520 B.t.u. gas. The results that may be expected by such operation were calculated and are shown in Table No. 2.

TABLE NO. 2. REFORMING OIL GAS

Oil Cracked	*Gas Oil*		*25 API Fuel Oil*		*9 API Fuel Oil*	
Operation	*No Steam*	*With Steam*	*No Steam*	*With Steam*	*No Steam*	*With Steam*
Oil Cracked/M Blue Gas, Gals.	5.50	9.50	5.30	9.20	3.66	6.35
Oil Gas Produced, Cu. Ft.	67.0	116.0	109.0	189.0	59.5	103.0
Additional Oil Gas Required, Cu. Ft.	207.0	156.0	163.0	83.0	166.5	123.0
Additional Oil Cracked, Gals./M	17.0	12.8	7.9	4.0	10.3	7.6
Total Oil Cracked, Gals./M	22.5	22.3	13.2	13.2	13.96	13.96
Fuel Oil Required for Htg. Gals.	1.27	0.95	0.61	0.31	1.15	0.85
Gasoline, Gals./M	17.5	17.4	8.6	8.6	5.15	5.15
Coke Made Lbs./M	29.0	28.8	22.0	22.0	66.0	66.0
Coke Required Lbs./M	12.0	13.8	12.0	13.8	12.0	13.8
Surplus Coke Made Lbs./M	17.0	15.0	10.0	8.2	54.0	52.2

TABLE NO. 3. COLD ENRICHMENT

Oil Cracked	*Gas Oil*		*25 API Fuel Oil*		*9 API Fuel Oil*	
Operation	*No Steam*	*With Steam*	*No Steam*	*With Steam*	*No Steam*	*With Steam*
Oil Cracked	.550	.950	.420	.732	.219	.381
Labor	.027	.027	.027	.027	.027	.027
Maint. Utilities, etc.	.052	.090	.050	.087	.035	.060
Fuel	.049	.010	.028	——	——	——
Total Production Cost	$.678	$1.077	$.525	$.846	$.281	$.468
Gasoline Credit	.595	1.035	.475	.833	.189	.328
Coke Credit	——	——	——	.018	.024	.100
Total Credit	.595	1.035	.475	.851	.213	.428
Net Fuel & Oil Cost/M c.f.	.083	.042	.050	.005	.068	.040
Net Fuel & Oil Cost/Therm	.0188	.008	.010	——	.015	.007

TABLE NO. 4. REFORMING OIL GAS

Oil Cracked	*Gas Oil*		*25 API Fuel Oil*		*9 API Fuel Oil*	
Operation	*No Steam*	*With Steam*	*No Steam*	*With Steam*	*No Steam*	*With Steam*
Oil Cracked	1.125	1.125	.528	.528	.419	.419
Oil for Heating at 3c/Gal.	.038	.029	.018	.009	.035	.026
Labor	.027	.027	.027	.027	.027	.027
Maint. Utilities, etc.	.107	.107	.063	.063	.066	.066
Total Production Cost	$1.297	$1.288	$.639	$.627	$.547	$.538
Gasoline Credit	1.220	1.220	.600	.600	.367	.367
Coke Credit	.050	.045	.030	.025	.162	.157
Total Credit	1.270	1.265	.630	.625	.529	.524
Net Fuel & Oil Cost/M c.f. 520 B.t.u.	.027	.023	.009	.002	.018	.014

Fuel and Oil Cost

From the operating results given in Tables Nos. 1 and 2, the net fuel and oil cost per therm were calculated from Table No. 1 and the net cost per M of 520 B.t.u. gas from Table No. 2.

In these estimates the following assumptions were made:

1. That gas oil costs 5 cents per gal., 25 API oil, 4 cents, and 9 API, 3 cents.
2. That gasoline can be sold for 7 cents per gal. net.
3. That petroleum coke can be sold to net $6.00.
4. That the average daily amount of gas made is 1000 M cu. ft.
5. That the labor expense of operating the cracking plant is $10,000 per year. This amounts to 2.7 cents per M cu. ft.
6. That the maintenance, utilities and royalty charges on the cracking plant cost 20 cents per barrel of oil cracked.

The results of these calculations are shown in Tables Nos. 3 and 4.

Other items of expense including labor, steam, purification and miscellaneous expense should be the same as with present operation or approximately 10 cents per M cu. ft.

The conclusions arrived at were as follows:

1. That the lowest net fuel and oil cost is obtained with 25 API fuel oil using steam during the blow and cold enrichment of the blue gas. With such operation the residual credits are a trifle more than the cost of the oil cracked plus the cost of operating the cracking plant. This is comparable to the average coal gas operation in which the coke, tar and ammonia credits equal the cost of the coal carbonized. The net holder cost of gas with such operation should be approximately 10 cents per M.
2. That the most economical operation is that in which steam is used during the blow.
3. That the 6.2 lbs. petroleum coke produced per M cu. ft. of gas made compares with approximately 75 lbs. of coke made per M cu. ft. in a coke oven underfired with producer gas.

The conclusions gained from this comprehensive study of gas manufacturing processes are summarized as follows:

1. That the thermal efficiency of present methods used for manufactur-

ing gas — coal gas and carburetted water gas — is so high that there is little possibility of materially reducing gas production costs.

2. That fundamentally the two major processes used today in the manufacture of gas are the same as they were when originally developed. Changes and improvements have been made in the design of the equipment but not in principles underlying the processes.

3. That a material reduction in gas production costs is only possible in the production of valuable by-products.

4. That cracking Bunker C oil into gasoline, oil gas and coke in a regular cracking plant, using the coke for generator fuel, reforming the oil gas and selling the gasoline seems to offer possibilities of a 35 to 40 per cent reduction in the production cost of carburetted water gas.

5. That the maximum amount of gasoline that could be produced by the gas industry by such operation would be a small percentage of the total consumption. It should have no effect on the gasoline market.

6. That cracking Bunker C oil as proposed should provide a potential market for approximately 50 million barrels of fuel oil per year. This oil would be used in fairly uniform amounts throughout the year.

■ ■

Ames Meter School Plans Program for November

Production, distribution, utilization and metering will be discussed by speakers recognized nationally by the gas industry at the 19th annual Gas School and Conference to be held at Iowa State College, Ames, Iowa, November 13, 14 and 15. This school is conducted annually by the Mid-West Gas Association and the Engineering Extension Service, Iowa State College.

In addition to papers, a school of instruction for utilization service men is being sponsored by the utilization section. Adjustment and servicing of controls will be demonstrated by engineers representing control manufacturers. According to C. B. Dushane, Jr., first vice president and general chairman of the Mid-West Gas Association, a larger attendance than past years is expected.

■ ■

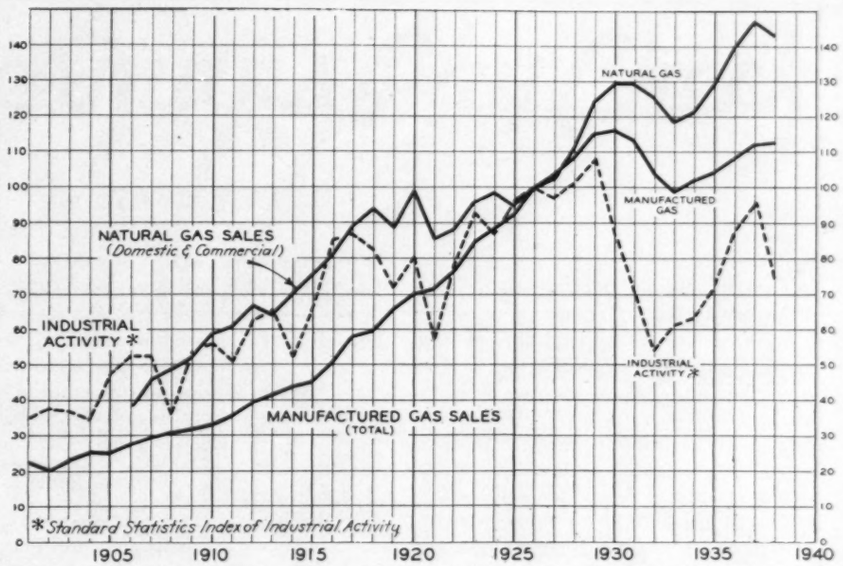
Michigan Gas Utility Sold

The American Utilities Service Corp., Savanna, Ill., has sold its subsidiary company, the Peninsular Utilities Co., Calumet, Mich., to Edwin H. Hansen of Calumet. The Peninsular company served gas to the towns of Calumet, Laurium and Lake Linden, Mich. Mr. Hansen is now president and general manager of the utility.

■ ■

Pennsylvania Line Started

Construction work has begun on the 4½-in., 19-mile pipe line to the L. J. Houze Convex Glass Co. plant at Point Marion, Pa., from the Wasson Well No. 1 on the Sorg lease in North Union Township. It is estimated the line will cost $80,000. Contractor is Sylvester Rich, Bradford, Pa.



The gas industry compared with general industrial activity. Index: 1926 equals 100.

A.G.A. Records to June, 1939 Reveal Industry's Growth

THE steady advance of the natural and manufactured gas industry over many years is reflected again in records which have just been released by the American Gas Association through Paul Ryan, chief statistician.

The report, compiled to June 30, 1939, shows that domestic customers, up to that date, had gained 317,400 in number during the year previous, completing a grand total of 16,140,000 domestic users in the United States.

During the five years from 1934 to 1938, inclusive, the natural gas industry registered a total gain of 840,000 users, or an increase from 6,391,000 in 1934 to 7,231,000 in 1938. Of this the domestic customers numbered 5,911,000 in 1934 and 6,665,000 in 1938, or an average of approximately 110,000 new accounts every year.

Paralleling this, the domestic customers of manufactured gas increased from 8,907,000 to 9,575,000, or an average annual gain of 133,600. If industrial, commercial and miscellaneous users are included, the totals are 9,330,000 for 1934, rising to 9,941,000 last year.

In terms of revenues for the first six months of 1939, statistics reveal a 5.8 per cent gain over the same period in 1938 for both manufactured and natural, totaling $444,451,100. Industrial and commercial returns represented an increase of 8.3 per cent, with domestic revenues being 4.7 per cent over the previous year's relative period.

Total 1937-1938 manufactured gas revenues from all classes of sales to consumers were $360,494,000 from the sale of 348,644,000,000 cu. ft., while in 1937-1938 $416,580,000 was received from natural gas for the sale of 1,213,352,000,000 cu. ft.

Comparative figures follow:

Natural gas:	
Gas customers at end of year	7,231,000
Sales to consumers (M c.f.)	1,213,352,000
Revenues from sales	$416,580,000
Manufactured gas:	
Gas customers at end of year	9,941,000
Sales to consumers (M c.f.)	348,644,000
Revenues from sales	$360,494,000

Gas appliance sales throughout the United States during the first six months of this year showed a sharp increase in volume over the corresponding period of 1937-1938.

Percentage increases on the items of principal sale follow: house heating equipment (gas-fired furnaces), 101; gas ranges, 38.4; gas refrigerators, 30; gas water heaters, 28.1; gas-fired boilers, 5.6.

■ ■

Evansville Supplied Gas By Kentucky Natural

The Kentucky Natural Gas Corp., Owensboro, Ky., has recently taken over the delivery of natural gas to the Southern Indiana Gas and Electric Co., Evansville, Ind. The Newton Pipe Line Co., which has been delivering natural gas to Evansville, recently sold its 10-in. pipe line from Francisco in Gibson County to Evansville, to the National Supply Co. of Pittsburgh, an affiliate of the Kentucky company.

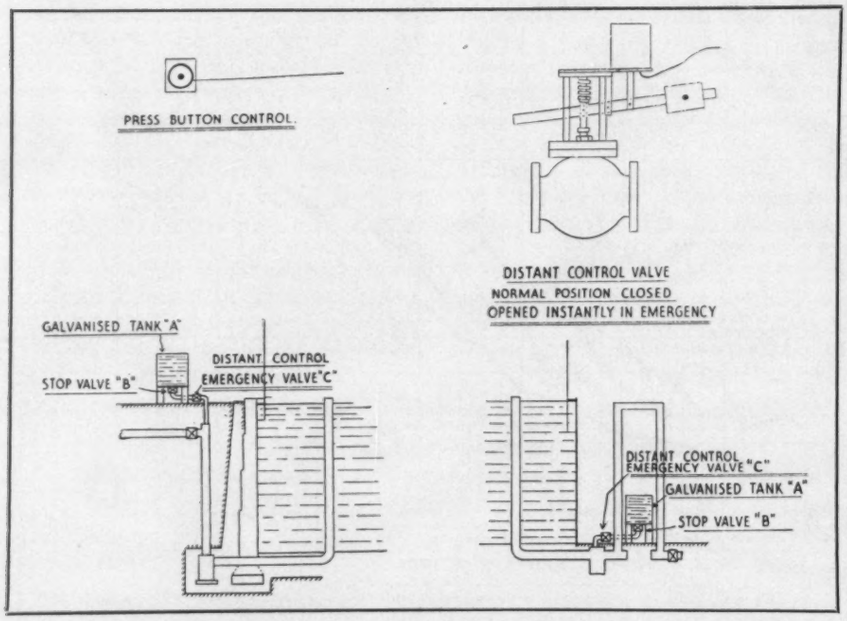


FIG. 1. Details of A. R. P. emergency method for flooding holder mains.

ARP

means Air Raid Precaution. On this page are reprinted two excerpts from The GAS Times, Sept. 9, 1939, published in London.

System of Blackout Control at Watford

THE control consists of a ½-in. special by-passed gland cock inserted in the standpipe at a height of 3 ft. 6 in. above ground level and operative only by a special key issued only to air raid wardens. Normally the cock is completely hidden from view inside the lamp column, but access is obtainable thereto by means of a detachable cast iron access plate, fluted on the outside to correspond with the rest of the column, and fitting exactly into a rectangular hole in its side.

The bottom of the access plate is V-notched and fits into a corresponding groove cast in the column, while at the top it is secured by a single non-corroding brass screw. Fitted into the plate, from the inside, and centered exactly opposite the control cock, is a screwed plug which can only be removed from the inside and the removal of which leaves sufficient aperture for the key.

Immediately on the declaration of a state of emergency, a fitter from the company visits each column, removes the access plate, withdraws and retains the plug, and replaces the access plate in position. This involves no interference with the normal functioning of the clock control, but leaves the lamp ready for immediate extinction by the warden in the event of a raid. Provision is made for the retention of the pilot flame by by-passing the cock with a small pipe terminating in the side of the clock control.

The same system of control will also be applied to all existing lamp columns, a 1½-in. diameter hole being drilled in the side of the column in a position corresponding to that of the plug in the access plate of the special column, this hole being closed in normal times by a screwed plug, conforming externally with the fluting or other design of the standard so as to be completely inconspicuous, but provided with two small shallow boreholes to receive a key for screwing and unscrewing when required.

These special columns are the design of F. E. Turner, of the Watford and St. Albans Gas Co., and they are being manufactured by Stokes Castings, Ltd., Union Foundry, Mansfield, who, with Mr. Turner, hold the patent rights for the appliance. The special gland valves are manufactured by Evered & Co., Ltd., Smethwick.

An Emergency Method of Flooding Holder Mains

THE isolation of* a holder damaged during an air raid is of vital importance: the most economical and simplest method of doing this is by flooding the inlet and outlet mains.

A water supply directly coupled to the main for this purpose might result in overflowing to the other connecting mains. Moreover, the cost of laying water mains would most probably be greater than that of the proposal shown in the accompanying sketch (Fig. 1).

A further point is that the water mains may be damaged at the same time as the holder, and, considering that the whole operation of sealing should be completed in a few seconds, water mains of relatively large length and diameter would be necessary.

The arrangement of the inlet and outlet connections to most types of holders is such that water flooding can be resorted to.

The equipment necessary for this scheme consists of an elevated galvanised tank "A" of sufficient capacity to seal the syphon and main to definite height, the connection from the tank to the main being of *sufficient diameter* to empty the tank as quickly as possible.

Two valves are inserted in the connecting pipe between the tank and main, one a stop valve, shown "B" to be always closed in normal times, and the other, "C," an emergency opening valve for quick opening by pressing a button at any remote control station. This valve would be of an electro-magnet type, ensuring quick and positive operation by means of a weight-loaded lever. The whole system can be operated from an ordinary lighting circuit or storage battery.

*The author: J. E. STANIER, Stoke-on-Trent.

■ ■

Gas Transportation Co. Will Build to Greenville, Mich.

Greenville, Mich., will soon be served with natural gas as the result of a recent action of the Michigan Public Service Commission in approving the Gas Corp. of Michigan's construction of a $'6,600 natural gas pipe line to that city from the Winfield township wells, 20 miles distant.

The new line will be of 3-in. pipe and the natural gas will supplant the present manufactured gas. Company engineers estimate that the savings to consumers will be 31.6 per cent of present costs.

■ ■

Gas Company Purchased

The gas company at Huntsville, Ohio, has recently been purchased by Herb Cross, resident of the town. A pipe line from Huntsville to Binckley's Corner was constructed in order to connect with the main line of the Lake Gas Co., from whom gas is purchased.

Your Salesman's Pay Check

By STANLEY JENKS

STANLEY JENKS

THE PROBLEM of paying the utility salesman has received much discussion. The present article, the first part of which was published in the October issue of GAS, is the expression of a man who has had wide experience for many years both on the utility and on the manufacturers' sales fronts. In this second installment, herewith published, Mr. Jenks describes methods of determining salaries and bonuses for supervisors and salesmen based on added revenue quotas to provide satisfactory earning expectancies, contingent on the load secured from appliance sales, and concludes with a discussion on dealer coordination. The concluding installment to be published in the December issue of GAS will discuss a system of dealer bonuses, an analysis of utility-holding practices, and the author's conclusions.—Editor.

IN that I am expounding an idea and desiring to keep things as simple and as self-explanatory as possible, I would prefer to eliminate any management expense from this discussion. It is a matter for local adjustment anyway. I assume that all supervisory compensation will be for direct sales supervisors in the field, that is for local merchandise sales managers in the field in our A, B, C and D districts. The inducements of flexible compensation in appliance sales work, even among supervisory personnel, are too valuable to pass up, and I suggest a salary and a bonus arrangement based on a satisfactory expectancy of earnings, contingent on a satisfactory job done, that is at least making the reasonable quotas established. Since it is obvious because of the nature of the work, that salaries cannot fairly be directly proportional to the number of customers, it is equally obvious that bonuses per appliance cannot be uniform throughout all districts. The question to ask first, is what is a reasonable expectancy of earnings for a capable sales supervisor in these districts? Shall we say, A, $6,000; B, $4,800; C, $3,600, and D, $3.000. If these assumptions are acceptable then supervisory compensation can be set up along the lines shown in Table No. 5. (See Page 28)

With reference to Table No. 5, supervisory salaries are charged 50-50 new business and merchandising, and all bonuses to new business.

Salesmen are paid a salary and load-building bonuses, and the following conditions are observed:

1. Size of territory—Districts A, B, 2,000 domestic meters; District C, 1,500 domestic meters; District D, 3,000 domestic meters.

2. The annual salary is $600 charged to new business.

3. The scale load-building bonuses are shown in Table No. 6. These bonuses are charged to merchandising and are applicable on all sales of approved appliances (retail or dealer) in the salesman's territory.

4. The average salesman's annual earning expectancy is $1800 under this plan.

Because home service works with all approved appliance sales, salaries and expenses are charged 50-50 new business and merchandise. Such costs are:

District	*Home Service Expenses*
A	$13,000
B	7,800
C	5,200
D	2,000

Office help and miscellaneous sales expense is charged 50-50 new business and merchandising and is budgeted as follows:

District	*Indirect Sales Expense*
A	$10,000
B	6,600
C	4,800
D	3,000

It includes clerks, stenographers and salaries of all miscellaneous help in the sales department.

Supplies and expenses are 100 per cent a new business expense and cover the cost of all supplementary needs of the sales department.

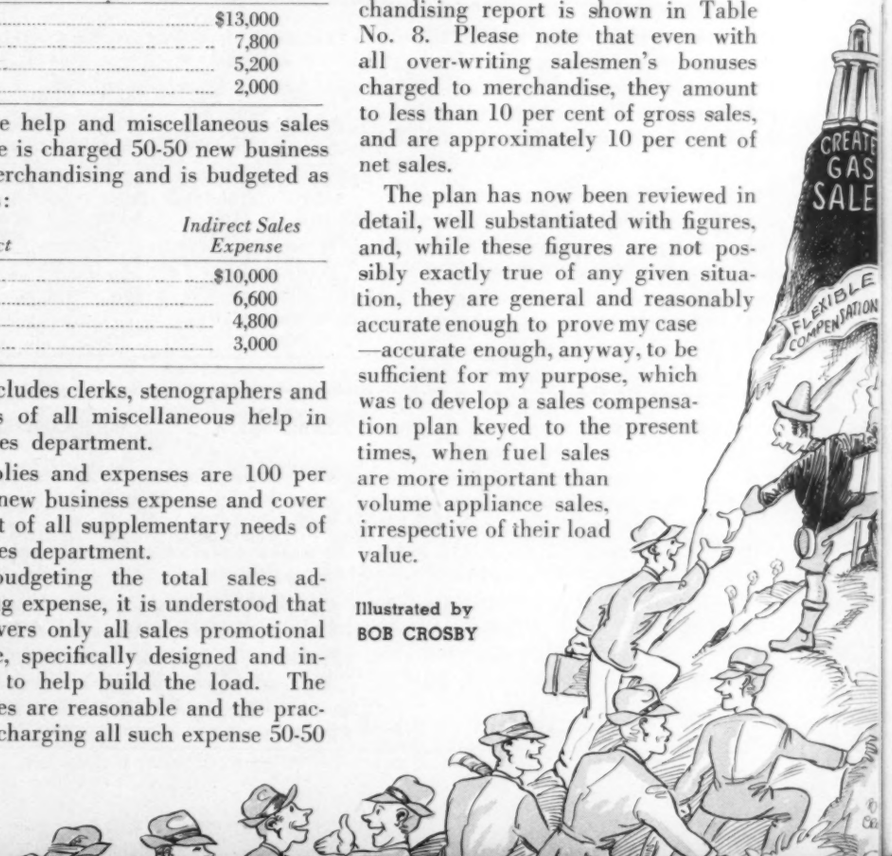
In budgeting the total sales advertising expense, it is understood that this covers only all sales promotional expense, specifically designed and intended to help build the load. The estimates are reasonable and the practice of charging all such expense 50-50 new business and merchandising is perfectly justified in view of the sales policies of the plan itself.

It is interesting at this stage to examine a conventional utility merchandise sales statement as it would probably appear for districts A, B, C and D as discussed so far.

We have discussed flexible compensation plans for both sales supervisors and salesmen and to do so, it was necessary to estimate the numbers of the various units to be sold before it was possible to determine the earning expectancies of the supervisors and salesmen in addition to their fixed salaries. Accordingly estimated gross merchandise sales quotas were determined as shown in Table No. 7.

And now with these gross utility appliance sales available and based on experience and a familiarity with utility merchandise sales reports, it is possible to compile a merchandising statement on all four districts, in which every sales cost charged as indicated previously, has been correctly taken up. The composite annual merchandising report is shown in Table No. 8. Please note that even with all over-writing salesmen's bonuses charged to merchandise, they amount to less than 10 per cent of gross sales, and are approximately 10 per cent of net sales.

The plan has now been reviewed in detail, well substantiated with figures, and, while these figures are not possibly exactly true of any given situation, they are general and reasonably accurate enough to prove my case —accurate enough, anyway, to be sufficient for my purpose, which was to develop a sales compensation plan keyed to the present times, when fuel sales are more important than volume appliance sales, irrespective of their load value.



Illustrated by BOB CROSBY

Dealer Coordination

On May 2, 1931, the A.G.A. issued and adopted a statement of merchandising principles for promoting cooperative trade relations. This statement was accepted and indorsed by the National Association of Master Plumbers and the National Retail Hardware Association. While recognizing it as a statement and not an agreement, I believe our own association was entirely sincere when it issued it, and therefore, I feel it is significant for our present purpose. I reprint it here to refresh our memories.

STATEMENT OF MERCHANDISING PRINCIPLES FOR PROMOTING COOPERATIVE TRADE RELATIONS, ADOPTED AND ISSUED BY THE AMERICAN GAS ASSOCIATION, MAY 2, 1931.

1. All gas appliances offered for sale by all cooperating agencies shall bear the seal of approval of the American Gas Association Testing Laboratory.

2. No appliance or merchandise not directly related to the use of gas shall be sold by gas utilities.

3. In all merchandising activities, the resale mark-up of all gas appliances that have received reasonable customer acceptance shall be consistent with present day merchandising practices. There shall be no premiums given with nor trade-in allowance made in connection with the sale of any such appliances unless all cooperating agencies are in a position to participate.

4. The presenting to the public of those gas appliances not having received reasonable customer acceptance shall be considered as promotional activities and not as merchandising activities.

5. Co-ordinated advertising of approved appliances should be developed by gas utility companies and local dealers and the gas company should give all reasonable assistance possible to the dealer in advertising, displays and sales assistance.

6. The deferred payment feature of our merchandising activities shall be on an economically sound basis.

The first and fundamental conclusion one can possibly draw from the above statement is that the gas utility industry recognizes the potential load-building possibilities of these dealers under certain conditions, which are hinted at rather than expressed. Specifically, what are those conditions? In a nutshell, it is implied that any dealer retailing quality gas appliances acceptable to the utility—and A.G.A. Laboratory approval should be acceptable—is entitled to an equal opportunity to retail alongside the gas company. And that is the reasonable limit to what he can ask. It is my contention that few so-called "dealer cooperative" plans are reasonable in this respect. They either tie too many strings on the dealer or they put the screws unnecessarily on the gas company. In fact, to put it bluntly, I feel that "appeasement" rather than sincere help has been our motive, due to our antiquated merchandising policies. Any measuring stick of retail volume sales precludes any hopes of real, practical cooperation.

Can the dealer build gas load for us? Certainly he can, if he sells approved gas appliances, for to sell them he has to talk, display and advertise them. In today's "battle of the fuels," where we are vigorously defending our base cooking load, and meeting intensive competition in the incremental load fields, we need (whether we choose to admit it or not) all the sales help we can muster.

The conventional utility answer to such an argument is that the average dealer cannot merchandise for sour apples. He's a total dud, when it comes to selling specialty equipment such as ours. While this may be generally true, why shouldn't he be? With few exceptions, he has either been pampered by so-called "cooperation" to the point where he is "bonused" to inertia, or else he faces a competitive situation which he cannot successfully meet, even where alleged "co-operative" plans are in effect. Often, we are so naively illogical. We cooperate (sic) by paying our salesmen to take sales away from the dealer. You can't blame the salesman. He has to eat too, and any salesman worth his salt will do it every time, no matter what orders are given him to the contrary. You might as well expect a hungry lion to pass up raw meat, because it happens to be human flesh. *Right there, on the firing line, where all sales plans are made or "busted," you cannot fundamentally compete and cooperate at one and the same time.*

A conscientious, hard-working dealer has only to lose the profits on one sale to a commission-minded utility

TABLE NO. 5. SUPERVISORY COMPENSATION

		Unit Load-building Bonuses (unit quotas in parenthesis below)							
Supervisor	*Annual Salary*	*Gas Range (Repl.)*	*Gas Range (New Cust.)*	*Automatic Water Heater*	*Refrigerator*	*Central Heating*	*Man. W. Heater Aux. Sp. Heater Miscellaneous*	*Total Bonuses*	*Total Annual Earnings Expectancy*
A	$3600	$0.10 (3500)	$0.40 (1500)	$0.75 (1000)	$0.30 (1000)	$2.50 (1000)	1% of all estimated added revenue from miscellaneous sales (see Table D) computed and paid at the end of the year.	$2402	$6002.00
B	$3000	$0.10 (2100)	$0.40 (900)	$1.00 (750)	$0.50 (600)	$2.50 (60)		$1861.20	$4861.20
C	$2400	$0.10 (1050)	$0.40 (450)	$1.75 (375)	$0.50 (300)	$5.00 (30)		$1236.85	$3636.85
D	$1800	$0.10 (700)	$1.00 (300)	$2.00 (250)	$1.00 (200)	$5.00 (20)		$1240.40	$3000.00

TABLE NO. 6. SALESMEN'S COMPENSATION

			Unit Load-building Bonuses (unit quotas in parenthesis below)							
District	*No. of Salesmen*	*Total Salaries Charged to N.B.*	*Gas Range (Repl.)*	*Gas Range (New Cust.)*	*Automatic Water Heater*	*Refrigerator*	*Central Heating*	*Misc. Totals*	*Total Bonuses Charged to Merch.*	*Total Annual Earnings Expectancy*
A	25	$15,000	$1.50 (3500)	$4.50 (1500)	$8.00 (1000)	$3.50 (1000)	$15.00 (100)	$5,000	$30,000	$45,000
B	15	9,000	1.50 (2100)	4.50 (900)	8.00 (750)	3.50 (600)	15.00 (60)	1,650	18,000	27,000
C	10	6,000	2.00 (1050)	6.00 (450)	11.00 (375)	4.00 (300)	20.00 (30)	1,275	12,000	18,000
D	3	1,800	1.00 (700)	3.00 (300)	5.00 (250)	3.00 (200)	10.00 (20)	450	4,100	5,900

TABLE NO. 7. GROSS MERCHANDISE SALES

Item	Average Retail Price	Average Wholesale Price	DISTRICT A	DISTRICT B	DISTRICT C	DISTRICT D
Gas Ranges[1]	$ 60	....	$ 75,000	$ 45,000	$ 39,000	$ 15,000
Automatic Water Heaters[2]	70	....	52,500	39,000	19,500	13,000
Refrigerators[3]	150	$100	125,000	75,000	37,500	25,000
Home Heating Equipment[4]	300	....	15,000	9,000	4,500	3,000
Manual Water Heaters, Auxiliary Space Heaters and Miscellaneous	....	....	65,000	32,000	24,500	19,000
Total Gross Sales			$332,500	$200,000	$125,000	$75,000

[1]At retail, utility sells:

	A	B	C	D
Replacement	10%	20%	30%	30%
New Customer	60%	60%	75%	75%

[2]At retail, utility sells in all districts 75 per cent of total sold.

[3]Utilty sells: at retail 50 per cent of total; at wholesale 50 per cent of total.

[4]Utility sells: at retail 50 per cent of total.

appliance salesman and we lose more than a would-be gas load builder. We gain a fuel competitor with a "get-his-own-back" complex. I know one case where utility rapacity for volume sales drove one reputable distributor of gas appliances into the enemy camp with a vengeance. The distributor had to find something to compensate him for his loss of volume, and he did it by selling thousands of a competing appliance, which later that self-same gas company bought in, in the form of a trade allowance at a price about four times its original retail value. This happened where a much publicized "cooperative" plan was in effect.

Hazard Removed

The compensation plan we are discussing removes that hazard completely. Our salesmen are given closed zones and their sole concern, the inducement being an over-writing bonus, is to sell or help sell gas appliances in their zone to meet an established quota, on the basis that if the dealer can't or won't, they can and will. You will note in this plan of retailing ranges to replace gas ranges, of the total budgeted, the gas company was only expected to sell as follows:

District A (50,000 dom. meters)—10.0%
District B (30,000 dom. meters)—20.0%
District C (15,000 dom. meters)—30.0%
District D (10,000 dom. meters)—30.0%

This was done because (1) gas ranges have public acceptance and (2) there are undoubtedly better dealer merchandisers in the larger centers.

In discussing this plan and its over-writing bonus feature with some of my utility friends, the question of collusion between dealer and utility salesman has been brought up. It is possible, of course, but highly improbable with the type of sales organization I have in mind. In the first place, it is really a question of supervision. The sales supervisor has a clear picture of the territory and its possibilities and also he knows the ratio of retail sales to dealer sales set up in the budget. If he spots zones getting out of line, the remedy is in his own hands. Furthermore, and this is said without any disrespect for our present personnel, I feel that such a plan would develop a maximum sense of appreciation and responsibility. Besides if a salesman isn't trustworthy, who wants him anyway? Certainly not a gas utility with all-important public relations at stake.

(In the final installment to be published in GAS for December, the author will discuss a system of dealer bonuses, an analysis of utility-holding practices, and the author's conclusions.—Editor.)

TABLE NO. 8. MERCHANDISE STATEMENT FOR THE YEAR

	DISTRICTS A	B	C	D
Gross Merchandise Sales	$332,500	$200,000	$125,000	$ 75,000
Allowance on Sales				
1. Sales Incentives				
2. Allowances				
3. Discounts allowed employes				
4. Discounts allowed customers				
Total Allowances	33,250	20,000	12,500	7,500
Merchandise Returned				
1. Returned merchandise	33,250	20,000	12,500	7,500
2. Forfeited payments	33,250	20,000	12,500	7,500
Total Returned				
Net Sales	299,250	180,000	112,500	67,500
Cost of Merchandise Sold				
1. Cost of merchandise sold	184,500	111,000	69,375	41,600
2. Cost of merchandise returned	16,600	10,000	6,250	3,700
3. Transportation & Installation expense	26,600	16,000	10,000	6,000
4. Replacement, repairs & recond. expense	6,600	4,000	2,500	1,500
Total Cost of Merchandise Sold	234,300	141,000	85,125	52,800
Gross Profit on Sales	64,950	39,000	27,100	14,700
Direct Selling Expense				
1. Expense of Sales Manager	1,800	1,500	1,200	900
2. Commission on net merchandise sold	30,000	18,000	12,000	4,100
3. Demonstrations, etc.	6,500	3,900	2,600	1,000
Total Direct Sales Expense	38,300	23,400	15,800	6,000
Indirect Selling Expense				
1. Advertising	15,000	8,300	5,800	5,450
2. Uncollectable merchandise bills	3,325	2,000	1,600	750
3. Miscellaneous sales expense	5,000	3,300	2,400	1,500
Total Indirect Sales Expense	23,325	13,600	9,800	7,700
Total Expense	61,625	37,000	25,600	13,700
Net Profit	3,325	2,000	1,500	1,000

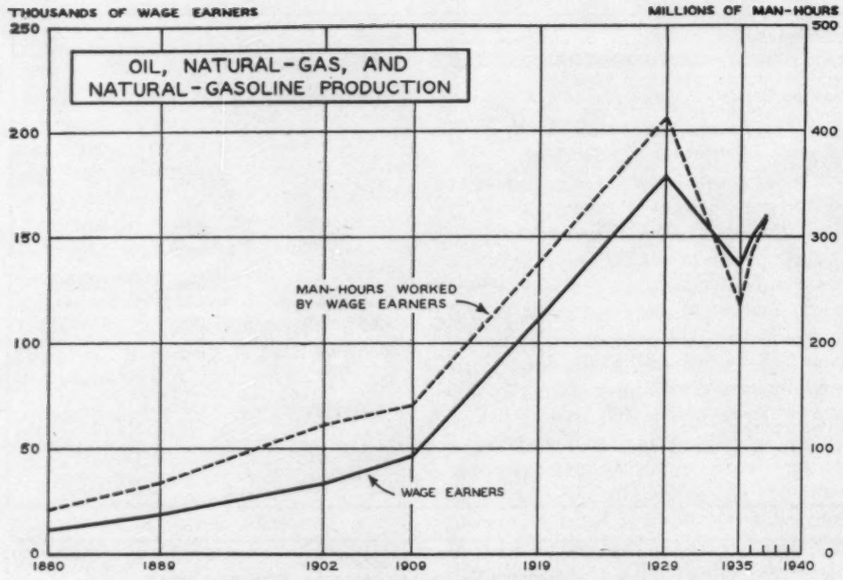


FIG. 1. Long-time trends of employment in the petroleum and natural gas industry.

WPA Study Shows Industry Employment on Increase

THE petroleum and natural gas industry, contrary to the general trend, will continue for a decade or more to provide increasing employment opportunities in spite of technological improvements which have trebled the output per man in the last 20 years, a study conducted by the WPA National Research Project finds.

The report, entitled "Technology, Employment and Output Per Man in Petroleum and Natural Gas Production," asserts that all indications point to steadily increasing fuel demands for many years to come. In addition, invention and improved production techniques serve constantly to reveal new uses for, and by-products of, petroleum and natural gas. These create new industrial demands which, in turn, create new demands for labor. This expanding technology is not expected to abate, nor even to become static, within the next 10 or 15 years.

Comprehensive Analysis

The report constitutes one of the most comprehensive analyses of the production phases of the petroleum and natural gas industry ever made, according to Corrington Gill, assistant WPA commissioner. Its significance is heightened by the fact that of more than a score of industries examined by the National Research Project in the last three years, petroleum and natural gas is the only one in which an expanding technology is accompanied by prospects for increased employment.

Oil and gas now supply more than a third of the country's energy requirements, an introductory statement points out, and petroleum alone is the source of virtually all industrial lubricants.

The trend of employment, it is found, was consistently upward through the boom year of 1929. Over this period total labor requirements grew rapidly, the greatest increase occurring during the war decade. Substantial recovery in employment has been made since the depression low point of 1935. In the primary production segments of the industry (which excludes refining) total employment grew from 136,735 in 1935 to 159,800 in 1937. (See Fig. 1.)

Striking improvements have been made in the increased output per worker, the report states, continuing:

"The history of the petroleum and natural gas industry represents an almost continuous record of successive economies in unit labor requirements. Output per man-hour (in oil and gas wells and natural gasoline plants) increased more than 850 per cent between 1880 and 1935. A more than three-fold gain was recorded in the relatively short span from 1919 to 1935.

"When the trends of output and employment for the past three decades are shown in juxtaposition, it appears that both production and labor requirements increased steadily through 1929. In the decade which ended in 1929, however, there was an important change. Although employment continued to increase in primary production activities, the rate of increase lagged notably behind the growth of output. Since 1932 production has recovered the depression losses. The number of wage earners employed in primary production, on the other hand, is still notably below the predepression high.

The Reasons Why

"The reasons why . . . have been the success of the industry in finding and migrating to new flush-production areas and the brilliant achievements of technologists that have enabled the capture of a large portion of gas and oil reservoirs with a lessening unit outlay of human labor . . ."

In conclusion it is pointed out that the known supplies of petroleum, coupled with the technological improvements which make a greater proportion of the supply recoverable, indicate a continued healthy existence for the industry. This is further substantiated by the prospect of an increasing demand for both gasoline and natural gas as fuels, and for the by-products developed in research.

"Both short- and long-time outlooks indicate that additional workers will be required in the petroleum and natural gas industry," the report concludes. "The increase will follow in part the expected continued growth of demand for motor fuel and lubricants, and in part to other factors, such as the shortening of the standard workweek, tending to counterbalance a continued increase in output per man-hour owing to improve technology.

"The demand for unskilled labor in most branches of the industry is disappearing rapidly. For the bulk of the industry's labor force youths with high school education or its equivalent are preferred as new employes. There is little hope for reemployment of older, untrained workers who have lost their jobs in the industry."

The report is published as a book of 350 pages, illustrated, with numerous charts and tables, and with a statistical appendix. It is the sixth in the Production, Productivity and Employment Series of the WPA National Research Project on Reemployment Opportunities and Recent Changes in Industrial Techniques. It was prepared by O. E. Kiessling and H. O. Rogers, with the assistance of a group of government and industrial experts, under the supervision of David Weintraub, director, National Research Project.

Convention Highlights

A NEW attendance record for an American Gas Association convention without manufacturers' exhibits was established in New York, October 9-12, when 3240 delegates registered at the Hotel Pennsylvania. Temperature records were also broken, as New York hit 86° F. for the middle of October, a new high since 1916.

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Instead of the President's ball, an organized, conducted trip to the World's Fair (New York version) was made. Speakers were President **Conrad N. Lauer** and **Clifford E. Paige.** A tour of the Gas Industry Exhibit, and the Homewood All-Gas *Good Housekeeping* home were in the itinerary which also included visits to the glass blowing and pottery exhibits. The gas lighting effects in the fountain display in the Lagoon of Nations, however, stole the show.

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President **Conrad N. Lauer**: "It is my firm belief that the securities of the gas industry are growing in favor —one need only to note the reports of security dealers and articles in the general and financial press."

• • •

The two delegates who came the longest distances were **S. Jones,** chief engineer, Honolulu Gas Co., Ltd., and **R. E. Coles,** general superintendent, Panamena Fuerzay Luz, Panama City. The latter found more B.t.u.'s in the New York atmosphere than he bargained for.

• • •

The gathering war clouds undoubtedly complicate the many problems besetting an industry like ours. Leadership in uncertain times like these becomes doubly important. It seems almost providential that the incoming president of A.G.A. should be **Walter C. Beckjord,** who has already won a tidy reputation for himself as one of our industry's ablest executives.

Major T. J. Strickler, Kansas City, is next in line for the presidency.

George F. Mitchell, Peoples Gas, Light and Coke Co. president, Chicago, was named second vice president, while President **Ernest R. Acker** of Central Hudson Gas & Electric Corp. remains as treasurer. Section leaders for next year will be:

Accounting Section: Chairman, F. B. Flahive, Columbia Gas and Electric Corp., New York, N. Y.; vice-chairman, E. N. Keller, Philadelphia Electric Co., Philadelphia, Pa.

Commercial Section: Chairman, Davis M. DeBard, Stone & Webster Service Corp., New York, N. Y.; vice-chairman, R. J. Rutherford, Worcester Gas Light Co., Worcester, Mass.

Industrial Gas Section: Chairman, Franklin T. Rainey, The Ohio Fuel Gas Co., Columbus, Ohio; vice-chairman, H. Carl Wolf, Atlanta Gas Light Co., Atlanta, Ga.

Manufacturers' Section: Chairman, E. R. Guyer, Cribben & Sexton Co., Chicago, Ill.

Natural Gas Section: Chairman, Elmer F. Schmidt, Lone Star Gas Co., Dallas, Texas; vice-chairman, Harry D. Hancock, Gas Advisers, Inc., New York, N. Y.

Technical Section: Chairman, A. M. Beebee, Rochester Gas and Electric Corp., Rochester, N. Y.; vice-chairman, D. P. Hartson, Equitable Gas Co., Pittsburgh, Pa.

• • •

E. M. Tharp, vice president, Ohio Fuel Gas Co., Columbus: "A Public Utility cannot be regarded as fair because it does one thing fairly, but only when its every performance sustains an expectancy that it will do all things fairly."

• • •

Frank Houston, Rochester, and **John Clark,** Stamford, Conn., were presented with watches as tokens of appreciation for the fine jobs each did as chairmen of the domestic range and water-heating committees respectively. A timely gift if ever there was one. Unfortunately, Mr. Clark was absent through illness from the presentation, made at a luncheon meeting of the commercial section by Chairman **F. X. Mettenet,** Chicago.

• • •

The happy choice of New York for the convention was proved by the number of wives who attended. The Ladies Luncheon was held at the Court of Flame restaurant in the Gas Exhibits Building.

• • •

Herman Russell, president, Rochester Gas and Electric Corp.: ". . . research must be greatly enlarged and intensified . . . It is not enough that we have a fuel . . . a range, a water heater . . . which will do the work . . . We must have the fuel and the appliance which will not only do the work, but do it better and cheaper than the same job can be done by any other fuel."

• • •

The natural gas section meeting was first but by no means least on the convention program. **Tom Weymouth,** New York, presided and culminated a highly successful year's leadership of the Natural Gas section. **Elmer F. Schmidt,** Dallas, Texas, is the new section chairman. Section Secretary **E. Holley Poe** was busy explaining away the lack of invigorating weather which he had promised his western friends.

• • •

When the Beal Award, the highest technical recognition the gas industry can bestow, was conferred on **E. G. Hammerschmidt,** chief chemist of the Texoma Natural Gas Company, Fritch, Texas, it marked the first time since it was founded 37 years ago, that it has been awarded a natural gas man. (*GAS*, May, 1939, p. 30.)

• • •

R. E. Fisher, vice president, Pacific Gas and Electric Co., San Francisco: "Good relations with our employes depend on something more than high wages . . . to most employes a sense that they have been treated fairly is just as important as that they are being paid well."

• • •

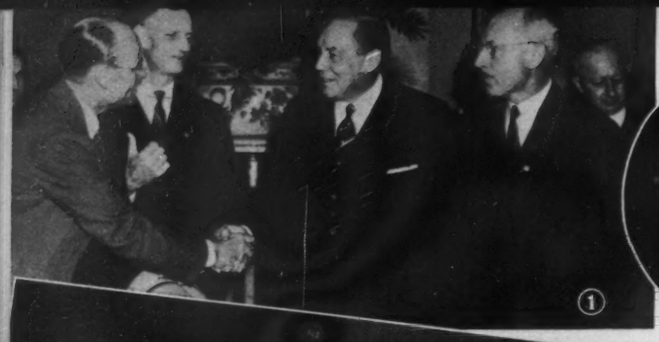
The Charles A. Munroe award for the most outstanding individual contribution to the advancement of the gas industry during the year, went to **James F. Pollard,** president of the Seattle Gas Co. for the leading part he played in initiating the association's national advertising program.

• • •

Ralph Leslie Fletcher, vice president and engineer of the Providence Gas Co., Providence, R. I., was awarded the A.G.A. Meritorious Service Medal for his outstanding work when the hurricane hit and devastated New England in September, 1938.

• • •

Hugh H. Cuthrell, vice president, The Brooklyn Union Gas Co.: "The publicity resulting from the gas industry's participation in the World's Fair has penetrated every section of the nation, has reached every category of American life and represents a greater volume of favorable promotion



Between Sessions at Jhe

(1) A. G. Ford, Western United Gas & Electric Co., Aurora, Ill.; C. H. Waring, Kansas City Gas Co., Kansas City, Mo.; Chas. A. Munroe (retired), Donator of A.G.A. Munroe Award (New York); Geo. W. Parker, St. Louis, Mo.

(2) Walter C. Beckjord, Columbia Gas & Electric Co., New York City.

(3) F. S. Rutherford, Republic Steel Co., Washington, D. C.; John O' H. Anderson, Jones & Laughlin Steel Co., Pittsburgh, Pa.

(4) E. L. Payne, Payne Furnace & Supply Co., Beverly Hills, Calif.; Joe Harper, Pittsburgh Equitable Meter Co., New York, N. Y.; C. E. Bartlett, Ruud Mfg. Co., Philadelphia, Pa.; A. E. Petersen, Minneapolis-Honeywell Regulator Co., New York, N. Y.

(5) K. C. Tomlinson, American Meter Co., Inc., San Francisco; W. A. Dunkley, Memphis Light, Gas & Water Co, Memphis; Samuel E. Linton and C. F. Carter, Nashville Gas & Heating Co., Nashville, Tenn.

(6) C. H. M. Burnham, Panhandle Eastern Pipeline Co., Kansas City, Mo.; C. C. Reed, Hope Natural Gas Co., Clarksburg, W. Va.; Harold Wahl and Jim Satterwhite, Westcott & Greis, Dallas, Texas, and Tulsa, Okla.

(7) R. F. Hinchey, West Texas Gas Co., Lubbock, Texas; K. V. Ludlow, and F. T. Clifford, Cleveland Heater Co., Cleveland, Ohio, and Salt Lake City, Utah; Alfred Johnson, Combustion Utilities Co., New York City; J. R. Wohrley, Electric Advisers, Inc., New York; G. E. Briggmann, Carbide and Carbon Chemicals Corp., New York City.

(8) G. J. Draran, C. Holstein, J. F. Fischer, C. Weller, J. H. Portz and R. Flentje, Public Service Corp. of New Jersey, Hoboken, and West New York, N. J.

(9) Geo. L. Cullen, Harrisburg Gas Co., Harrisburg, Pa.; W. T. Ryan and Frank Mendez, Philadelphia Electric Co., Ardmore and Philadelphia, Pa.

(10) R. G. Griswold, Electric Advisers, Inc., New York, N. Y.; T. J. Strickler, Kansas City Gas Co., Kansas City, Mo.; N. H. Gellert, Great Lakes Utilities Co., Philadelphia, Pa.

(11) Steve Day, The Barrett Co., Houston; Herman G. Horstman, Public Service Co. of Indiana, Ind.; Floyd Gaunt, Reynolds Regulator Co., Anderson, Ind.

(12) R. B. Harper, The Peoples Gas, Light & Coke Co., Chicago; Alexander Forward, American Gas Association, New York; J. D. Creveling, Panhandle Eastern Pipe Line Co., New York.

The A. G. A. Convention

(13) Frank J. Hoenigmann, Cribben & Sexton Co., Chicago; W. J. MacIntyre, Arkansas-Louisiana Gas Co., Shreveport, La.; Chas. B. Gamble, Birmingham Gas Co.; Birmingham, Ala.; C. H. Zachry and F. D. Bradley, Southern Union Gas Co., Dallas, Texas.

(14) A. J. Kerr, Pittsburgh Equitable Meter Co., Tulsa, Okla.; H. P. Mueller, L. J. Mueller Furnace Co., Milwaukee, Wis.

(15) John J. Winn, Portland Gas & Coke Co., Portland, Ore.; Geo. E. Whitwell, Philadelphia Electric Co., Philadelphia; W. H. Wilwel, H. Leigh Whitelaw and John O'H. Anderson, Jones & Laughlin Steel Corp., Pittsburgh; D. P. Hartson, Equitable Gas Co., Pittsburgh.

(16) G. S. Young, Michigan Gas Transmission Co., Detroit; Davis M. DeBard, Stone & Webster Service Corp., New York; E. M. Converse, Dearborn Chemical Co., Chicago; F. E. Sellman, Servel, Inc., New York.

(17) F. E. Vandaveer, A.G.A. Testing Laboratories, Cleveland, Ohio; Clifford Johnstone, Pacific Coast Gas Association, San Francisco; E. Holley Poe, Natural Gas Association, A.G.A., New York City; Wm. Berghorn, A.G.A.E.M., New York City.

(18) H. A. Ehrmann, Consolidated Edison Co. of New York, Inc., New York; Leon J. Willien, Public Utility Engineering & Service Corp., Chicago; M. T. Bennett, Public Service Commission, State of New York, New York.

(19) L. A. Seyffert, Columbia Engineering Corp., Columbus, Ohio; F. E. Eckert, Hanlon-Bird, Bradford, Pa.; Don Wilson, Columbia Oil & Gasoline Co., New York, N. Y.; B. R. Bay, Northern Natural Gas Co., Omaha, Neb.

(20) E. F. Schmidt and Julian F. Foster, Lone Star Gas Co., Dallas, Texas; F. T. Park, Public Service Co. of Colorado, Denver; H. D. Hancock, Gas Advisers, Inc., New York, N. Y.

(21) E. V. Kesinger, Natural Gas Pipeline Co. of America, Chicago; Norman R. McKee, Southern Counties Gas Co., Los Angeles; E. B. Hanmer, American Stove Co., Cleveland; J. G. Dickinson and E. G. Hammerschmidt, Texoma Natural Gas Co., Amarillo and Fritch, Texas; Geo. W. Smith, Southern Counties Gas Co., Santa Barbara, Calif.

(22) F. M. Banks, Southern California Gas Co., Los Angeles; F. X. Mettenet, The Peoples Gas, Light & Coke Co., Chicago.

(23) N. J. Reiff, W. J. Schoenberger Co., Cleveland; H. N. Ramsey, Welsbach Co., Gloucester, N. J.; J. H. Zeigler, The Wilcolator Co., Newark, N. J.

than has ever previously been received by gas."

• • •

E. F. Jeffe, vice president, Consolidated Edison Co. of New York, Inc.: "We must make it possible for even our low income customers to buy appliances on proper financing terms . . . must produce buying desire, develop means for buying, establish a platform of large volume sales and low prices, sensibly meet competition."

• • •

It was very appropriate that the New York World-Telegram should run a feature story on **Mary E. Dillon,** president, Brooklyn Borough Gas Co., during the convention. It was one of a series entitled "Meet the Boss," and high-lighted Miss Dillon's career from her first job with the company as a girl of 18, to becoming our only woman gas company president. Miss Dillon is indeed an inspiration to every girl in the industry.

• • •

Frank C. Smith, president and general manager, Houston Natural Gas Co., Houston, Texas, as chairman of a special committee on fundamental research in recommending the formation of a research institute for the natural and manufactured gas industry, stated that the industry must recognize . . ."before it is too late the fundamental dependency of modern industrial activities upon pure science and its application."

• • •

The third annual Feast of the Gild of Ancient Suppliers of Gas Appliances, Skills, Gins, Accessories and Substances at the Hotel Pennsylvania, Tuesday evening, was a most enjoyable event attended by nearly 300 members and invited guests.

Honorary membership was conferred on **Herman Russell,** president of the Rochester (N. Y.) Gas & Electric Corp., and former A.G.A. president, in recognition of accomplishments which "made the gas industry appreciate itself and the general public appreciate the gas industry."

• • •

Allan W. Lundstrum, Ebasco Services, Inc., N. Y.: "Summer air-conditioning might enable the gas industry to increase its total sales each year by 55 per cent."

• • •

Some 175 delegates attended the Industrial Gas Luncheon on Tuesday to hear the Industrial meetings of the convention keynoted by **Charles G. Young,** manager, Springfield Gas Light Co., Springfield, Mass.: "The market for new equipment will be greater than ever, and progress in manufacturing methods, together with promotion of new industries, will present opportunities for new applications of our fuel . . . loads heretofore considered unattainable for economic reasons may develop surprising volumes."

• • •

F. M. Banks, vice president, Southern California Gas Co., Los Angeles: ". . . people are thinking of appliances in terms of vogue, style, modernity . . . our job is not to argue against style but to promote it . . . new homes are setting standards for millions of our present customers . . . We must see that these standards are acceptable to us."

• • •

James F. Pollard, president, Carter Medal was offered in 1923, it was awarded to a man who revived two people simultaneously asphyxiated with gas, **Kenneth H. Dinneen,** Central New York Power Corp., Syracuse, N. Y.

• • •

James F. Bollard, president, Seattle Gas Co., stated that national advertising has played an important part in increasing appliance sales; in selling the idea of the all-gas home; in putting competition on the defensive in improving the public attitude toward gas; in helping local gas interests; in encouraging stronger local promotion; in inspiring comment from radio commentators and women's magazines; in impressing investment bankers of its stability and aggressiveness; in stepping up the morale of the entire industry.

• • •

From 25 six years ago to a sell-out of over 300 is the proud record of the Home Service section at its convention breakfast. **Gladys Price,** the retiring chairman, should take this as a personal compliment for she made a grand chairman. And is **Jessie McQueen** happy about the whole thing?

• • •

Alexander Forward, managing director, American Gas Association, in revealing that the industry has taken preliminary steps to guard against a war time emergency, stated: "Any increase in general industrial activities resulting from hostilities will be reflected quickly in industrial gas sales and eventually, though slowly, in domestic utilization."

• • •

Some of the most interested fast breakers at the home service super-breakfast were the editorial experts of the national women's publications and the daily press. The gas industry is major news these days.

• • •

We don't know who had the largest delegation, but from the way we kept running across them, **B. C. Adams** and his gang from Kansas City, must have surely won the honor.

• • •

Atlantic City has been suggested as the locale for the 1940 convention, and again there will be no manufacturers' exhibits.

AT LEFT: J. P. Leinroth, Public Service Electric and Gas Co., Newark, N. J., and John J. Winn, Jr., Portland Gas and Coke Co., Portland, Ore. AT RIGHT: Lloyd C. Ginn, American Stove Co., Cleveland, Ohio; Franklin T. Rainey, the Ohio Fuel Gas Co., Columbus; Eugene D. Milener, secretary, A. G. A. Industrial Gas Section; Hale A. Clark, Michigan Consolidated Gas Co., Detroit; Frank H. Trembly, Jr., the Philadelphia Gas Works Co.; and W. H. Rudolph, Savory Appliance, Inc., Newark, N. J.

A Booklet That People Will Read!

IN a colorful booklet which will be the principal sales tool in its 1940 gas range campaign, the Peoples Gas Light and Coke Co., Chicago, has combined such seemingly incongruous elements as cartoons of the daily newspaper type with illustrations of the kind found in manufacturers' range catalogs, to tell a complete story of gas cookery and modern gas ranges.

Inquiry among the company's more than 100 salesmen developed the point that specific features of modern gas ranges were formidable talking points if developed in detail. To use this approach exclusively in a booklet, however, raised the danger of placing too much emphasis on the "nuts and bolts" phase of the range with the chance that the broad advantages of gas for cooking would be overlooked.

Because various surveys show that cartoons and comic strips rank near the top in public favor in newspapers, this technique was adopted to lead into each general subject: speed, control, comfort, cleanliness, and economy. From the general approach in the cartoon, copy and art work progressed to complete details of features, such as showing various gradations of heat on simmer burners as manufacturers have done in their catalogs.

Various elements from color advertisements of the American Gas Association's campaign in national magazines also were incorporated in the booklet which is entitled "The Easy Way to Cook Well."

← **SPEED—Real Speed When You Need It Is Vital to Good Cooking.**

→ **CONTROL—Be Sure that You—Not the Range—Control the Cooking Heat.**

WHAT A DIRTY LITTLE BOY! M-M-M-M!
DID YOU EVER? HOW IN THE WORLD WILL I GET HIM CLEAN AGAIN?
TOO BAD HE HASN'T GOT A NICE WHITE PORCELAIN FINISH LIKE MY MODERN GAS RANGE--IT'S EASY TO CLEAN-----AN' KEEPS THE KITCHEN CLEAN, TOO!

← **CLEAN COOKING—Clean Cooking Results When Gas Fuel and the Modern Automatic Gas Range Are Used.**

SUCH COOL IMPUDENCE! SASSIN' ME AN' LYIN' THERE IN ALL YOUR COMFORT WHEN YOU SHOULD BE STUDYIN' YOUR ALGEBRA!
RELAX, MA - HOW ABOUT YOURSELF? YOU GO IN FOR COOL COMFORT AN' HOIN WITH THAT MODERN GAS RANGE YOU HAVE IN THE KITCHEN

→ **COMFORT—The Easy Way to Year-'Round Comfort in the Kitchen.**

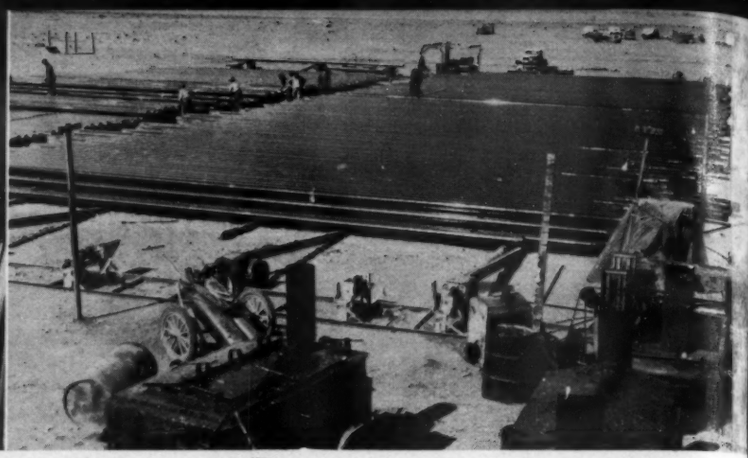
JUST BEFORE THE BATTLE, MOTHER.
WOT'S THE IDEA? $3 FOR PERFUME.. $3 FOR A NEW PURSE... BLAH. BLAH...THINK I'M MADE OF MONEY?
NOW, HORACE DEAR... THINK OF THE WAY I SAVE WITH MODERN GAS COOKERY... IT LETS ME ECONOMIZE IN SO MANY WAYS

← **ECONOMY—Remember This Above All—Gas Costs Less.**

FIX ME UP KEEN.. I'M STEPPIN' OUT TONIGHT
M-M-M LIKE TRYIN TO BEAUTIFY A MUD FENCE
THAT'S LIKE TRYIN TO BEAUTIFY THE KITCHEN WITH THAT OLD STOVE OF MINE.
I'LL SAY SO.. BUT YOU SHOULD SEE HOW BEAUTIFUL MY KITCHEN IS WITH MY MODERN GAS RANGE!

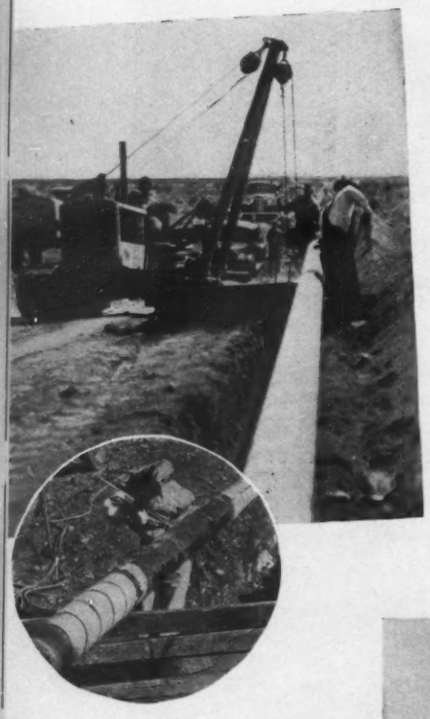
→ **A NEW RANGE—Glorify Your Kitchen with a New Gas Range.**

A Campaign Prepared by Clayton Cassidy, Advertising Manager, and Cartoons Drawn by Ray Fenton, Advertising Department, Peoples Gas Light and Coke Co., Chicago, Ill.



LEFT: Pipe being loaded in A. O. Smith Corp.'s Milwaukee plant for use on El Paso Natural Gas Co.'s 62 miles of loop lines between Jal, N. M., and El Paso, Texas. RIGHT: Pipe being made ready for stringing the 190-mile line from Gage, N. M., to Miami, Ariz.

El Paso Natural Extends Its Lines



ABOVE: Lowering 8⅝ in. pipe into the trench dug for the 190-mile line. INSET: Applying the protective coating.

ON this page are pictures taken during the construction of three of El Paso Natural Gas Co.'s recent pipe line extensions.

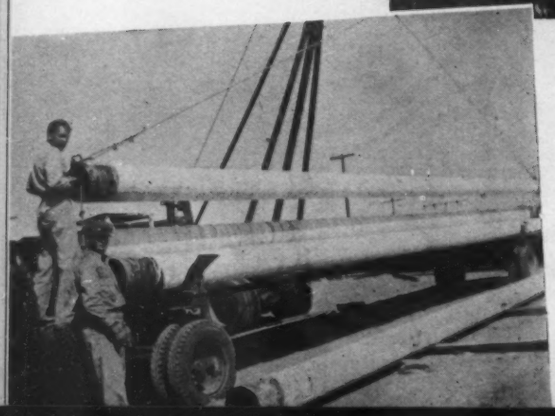
The longest of the lines, commenced in March and now completed, runs 190 miles from Gage, N. M., to Miami, Ariz. (See upper and lower right, and two center photos, furnished through the courtesy of A. L. Forbes, Jr., vice president and general manager.) It consists of 73 miles of 8⅝ in. OD pipe and 117 miles of 6⅝ in. OD pipe. This extension has made natural gas available to the towns of Duncan, Safford, Thatcher, Globe, and Miami, Ariz.

Another project, now under construction, is the looping of 62 miles of 16 in. pipe along the company's main line between Jal, N. M., and El Paso, Texas. The pipe for this line was furnished by A. O. Smith Corp., Milwaukee, Wis. (See upper left photo.)

The third extension consists of looping 56 miles of 12¾ in. pipe along the company's main line between El Paso and Deming, N. M. (See center, below, and lower left pictures.) Construction is under the direction of C. Hobson Dunn, Dallas, Texas.

ABOVE: Section of the 6⅝-in. pipe before being lowered into the trench. INSET: A wrinkle bend in the line.

ABOVE: C. Hobson Dunn trucks hauling 12¾ in. pipe for the 56 miles of looping along the El Paso-Deming line.



LEFT: Stringing pipe along the 56-mile loop line project.

RIGHT: Making a bend in the 190-mile line from Gage, N. M., to Miami, Ariz.

Importance of Regulation To Utility and Customer

• **A. M. HUTCHISON, the Ohio Fuel Gas Co., Columbus, Ohio, in a paper, "The Importance of Proper Gas Regulation to the Utility and to the Customer," presented before the Second Annual Appalachian Gas Measurement Short Course, University of West Virginia, Morgantown, W. Va., August 22, 1939.—(Abstract by G A S.)**

PROPER pressure regulation is one of the most important functions in the rendering of efficient, continuous and economical gas service. It is important to the customer and to the gas company. Within limits, it might be said that the efficiency of gas burning is almost proportional to the constancy of the pressure. Many influencing factors affect the carrying of an absolutely constant pressure, and in some of these cases it is not economically feasible to attempt a finer control.

Design of distribution pipe line systems, housepiping design and appliance design, all are tied in closely with the needed pressure regulation. The ideal plant of a distribution engineer is a plant so designed that constant pressures are carried throughout the system regardless of load conditions. In the initial design of many plants, such conditions exist and provisions are made so that the direction of expansion of the town is taken into consideration. However, as is many times the case, the expansion of the town changes in an altogether different direction, and as a consequence the original plant design is not adequate for constant pressure control in the entire system. In some of these cases, it is not economically possible to redesign the original system, but there always is the possibility of relocation of district regulators or installation of booster type equipment in some cases.

Control Refinement

In recent years, due to expansion of some towns, some distribution plants have been changed to provide all customers with additional refinement of pressure control. This has resulted in changing some present low pressure systems to high pressure systems with individual regulation to each customer. Some of the newer plants are so designed. But this is not all — the refinement of various appliances to burn gas has been developed by not only the manufacturer, but the utilities as well. As a consequence, the service to the customer is considerably enhanced, due to more efficient appliances, but in each instance, the matter of proper pressure regulation becomes a greater problem to the utility. The control necessary due to these advancements has required in some instances individual appliance regulators. Recently, some range manufacturers have advanced the idea of individual regulation on some of the newer ranges. The point it is desired to bring out is that as the utility tends to strive for more efficient appliance operation to the customer, they in turn are faced with additional problems in the matter of efficient control to those appliances which are quite critical in their operation.

In addition to the benefits of constant distribution pressures, many other benefits accrue throughout a company which purchases and produces its gas and transmits it long distances to market. Many gas companies are in such a business. Long transmission lines are designed with the thought in mind of transmitting gas as economically as possible. For the same load there is an economical choice of line size and pressure to be carried. Obviously, the larger the pipe, the less pressure necessary. But the original investment of the line is a factor and determination is made of the line for the job and what pressures will be necessary to supply the demand. After the choice has been made, the line laid and placed into operation, then the predetermined pressure must be kept on that line.

Some years ago, it was realized that a certain transmission system had some 350 towns and cities to adequately serve. Also it was realized that unnecessary high pressures were being carried, and it was deemed advisable to make a thorough survey to determine the minimum adequate pressures necessary to be carried in every part of the system. This system is so set up that many of the larger cities are quite remote from the source of supply. Thus many of the smaller towns and a few of the larger ones are served from laterals of varying lengths branching off from some of the larger pipe lines going to the remote markets. The maximum hour demand for each of the towns was determined. Using that as a basis, Weymouth's Pipe Line formula was used to check the permissible pipe line losses due to friction under conditions of maximum hour load. The survey indicated that the pressures carried could almost universally be reduced with safety, particularly in the case of the laterals. As a consequence, in almost every case of the lateral connection, a regulator was installed at the point of connection to the large line.

A Great Saving

What these installations have saved in the way of pipe line leakage and decreased operating expense of the pipe lines themselves would be purely guess work, but it was unanimously agreed that the cost of the installations has been saved many, many times over. In addition to this, it has insured the customer of an adequate supply with less chance of line failure due to carrying excessive pressures. It also provided one additional regulator ahead of the customer's appliance, thus increasing the safety of operations. During the off peak season, the pressures are still further reduced with additional savings in operating expenses and with further insurance to the customer of an unfailing service.

Regulators as originally designed had more or less friction in the working parts and required a certain drop in outlet pressure before they would function. Since that time, considerable progress has been made in the development of automatic loading devices, power arms, etc., so that the majority of regulators can now be made to operate with a negligible amount of pressure variation. Also, through proper regulator selection, pumping and freezing conditions have been remedied. Many companies also have gone to considerable expense in development of procedures for regulator repair, installation and operation.

CALENDAR

November

American Petroleum Institute — 20th Annual Meeting, Stevens Hotel, Chicago, November 13-17.

Mid-West Gas School and Conference—Iowa State College, Ames, Iowa, November 13-15.

New England Gas Association, Operating Division—Fall meeting, Narragansett Hotel, Providence, November 3.

December

National Industrial Council — Waldorf Astoria Hotel, New York, N. Y.

February, 1940

Southern Gas Association—Annual convention, Hot Springs, Ark., February 12-14.

May, 1940

Natural Gas Section, A. G. A.—Annual convention, Dallas, Texas.

An Air Conditioning Plant For the Average Home

• **GAS AIR CONDITIONING, especially summer cooling with its favorable load factor, has made great strides, but its application, however, has been restricted primarily to large installations. Lack of available equipment has in some measure retarded the development of residential refrigeration. In a paper presented before the American Gas Association Annual Convention in New York last month by C. F. CUSHING of the Bryant Heater Co., Cleveland, the silica gel application is described as a system that is coming closer to meeting the requirements of the average residence.—(Abstract by G A S.)**

NEW developments introduced early this year by Bryant included rotary type silica gel units and resaturation coolers. The rotary dehumidifier is now offered in two sizes; Model No. 5R, having a nominal capacity of 500 c.f.m., and Model No. 14R, having a nominal capacity of 1300 c.f.m.

The rotary units replace former Models No. 6S and No. 14S, and represent a marked improvement over these older stationary-bed type machines. Probably the most attractive feature of the new units is their low cost, the 500 c.f.m. unit now having a list price of $410 as compared with the $900 price of the former 600 c.f.m. unit, while the 1300 c.f.m. unit now lists at $730 whereas formerly the 1300 c.f.m. unit cost $1470.

Bryant Silica Gel Rotary Dehumidifiers deliver a constant supply of dry air when in operation, and turn on and off automatically when under the control of a humidistat.

The moisture content of the dry air is constant for any given inlet moisture condition.

Cylindrical Basket

The silica gel absorbent material is carried in a cylindrical basket made up of two concentric cylinders of wire mesh screen. A cross-section of this basket is illustrated in Fig. 1. The thickness of the silica gel bed in direction of air flow is approximately ¾ in.

The gel container, or "drum," is supported on two horizontal shafts (s), which are in turn supported by ball-bearings on each end attached to the frame of the machine.

The supporting shafts are rotated by a small geared motor (two for the No. 14R), and they in turn cause the drum to rotate. The No. 5R drum makes one revolution in about nine minutes, and the No. 14R one revolution in seven minutes.

Dividing seals on the inside and outside of the drum, extending lengthwise of the drum parallel to its axis of rotation, separate the machine into two compartments. The portion of the drum in the right hand compartment is drying air, while simultaneously the portion of the drum in the left hand compartment is being reconditioned.

As a particle of silica gel moves from Z to X, it absorbs more and more water vapor. "Saturation" having been attained when it gets to X, the silica gel then moves into the activation or heated air compartment where the water vapor previously adsorbed is to be driven off.

As the silica gel moves from X to Y, it is in contact with air heated by the gas burner H. The products of combustion from this heater are mixed directly with air drawn in through the activation inlet. The resultant mixture produces a temperature of 325° to 350° entering the silica gel.

When the gel reaches Y, all the water vapor has been driven off. It then enters the segment Y-Z, where unheated air passing through it partially reduces its temperature preparatory to its re-entering the adsorption compartment.

Each air stream has its own fan. The adsorption fan (D) handling the dried air, pulls the air through the wet air inlet, through the silica gel, and thence delivers it to the system, or conditioned space. The dried air is warm, its temperature having been elevated by reason of the latent heat of the water vapor removed by the silica gel being added to the air stream in the form of sensible heat.

The activation fan (A) handles both the hot air which has driven the moisture from the silica gel. and the cooling air.

•

FIG. 1.
Schematic diagram of rotary dehumidifier.

•

Since this air is warm and moist, it must be discharged out of doors.

The fans on the Model 5R unit are direct-connected to two ¼-hp. motors. These motors are cascaded electrically so that they start in sequence, which will permit the use of 110-volt service in the majority of cases.

The Model 14R unit fans are belt-driven by a single motor, both fans being on the same shaft.

The gas burner equipment includes a standard Bryant Combination Snap Valve and Regulator and a completely automatic thermostatic pilot. When the machine is stopped, the burner goes out through the action of the solenoid valve in combination with the gas-actuated snap valve, and then the pilot goes out.

When the machine is turned "on," gas is admitted to the pilot and is lighted by spark ignition. As soon as the thermostatic element is heated the spark ignitor is shut off and the burner is then ignited from the pilot.

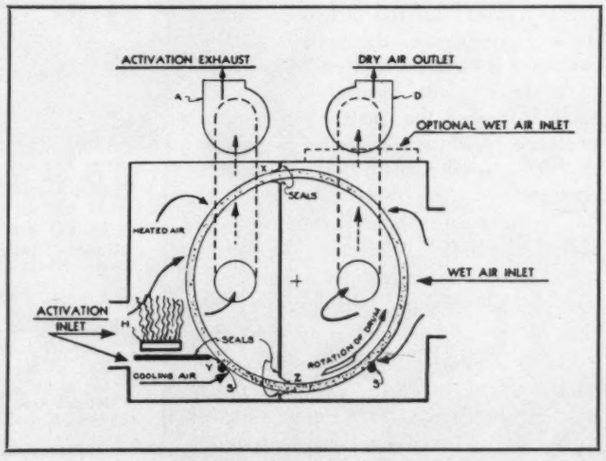
Additional Rotary Units

Bryant contemplates the development of two additional rotary models this fall, which will be in production sometime in the spring of 1940. Their capacities will be approximately 900 c.f.m. and 2500 c.f.m.

Resaturation coolers are available for use in conjunction with the 500 c.f.m. and 1300 c.f.m. units. These coolers consist of a casing, a cylinder made of wire screen, a drive motor to rotate the cylinder, and a float-type water feed. The lower portion of the wire screen cylinder is immersed in water, the level of which is kept constant by the float tank. The rotating cylinder keeps a large amount of wetted surface in constant contact with the air stream.

The percentage of saturation of the air leaving the cooler varies between 60 and 70 per cent, depending upon moisture content of air entering cooler.

While the heat transfer is theoret-



ically adiabatic, in practice the wet bulb temperature of the air rises about ½° F.

The resaturation cooler was developed primarily for residential application. In localities where water temperatures are higher than 60° F., dehumidifiers usually require some supplementary cooling means in order to maintain proper inside conditions with reasonable quantities of air circulation. Formerly, mechanical refrigeration was recommended for the supplementary cooling because the cost of the dehumidifiers was relatively high. Now, however, the low cost of the rotary units makes it economical and competitive to dry a larger quantity of air than that required for moisture removal and humidity control alone, and then evaporate water into this dried air, thereby lowering its temperature to a point where proper temperature levels in the space may be maintained.

Resaturation cooling installations in residences should provide some means of night air cooling. Night air cooling reduces the temperature of the structure, furniture, etc., so that the actual mechanical sensible cooling required during the daytime need be only about 65 per cent of the maximum sensible heat load as determined by usual calculation methods.

Dehumidifiers combined with resaturation cooling offer the gas industry an excellent means of penetrating the residential air conditioning market. The sales accent may be placed on humidity reduction rather than temperature reduction, thereby affording the salesman the most effective argument with which to create customer interest.

■ ■

Public Service Co. Obtains Pipe Line Company's Lines

The Public Service Company of Colorado, Denver, has recently taken over gas lines near Fort Collins, Colo., which were formerly possessed by the Colorado-Wyoming Gas Co. Through these lines, the Colorado-Wyoming company served 25 to 30 rural gas customers in addition to delivering gas to the Public Service Co. for distribution to certain cities. Under new regulations a pipe line company, such as the Colorado-Wyoming Co., cannot distribute gas at retail. According to Thomas Gray, district manager for the Public Service Co., rates of the nearest town will apply to the rural customers.

■ ■

Ernest Phillips, Pioneer Heating Manufacturer, Dies

Ernest L. Phillips, president of the Phillips Heating, Ventilating and Manufacturing Co., Los Angeles, Calif., passed away on October 13 at the age of 81. The firm was founded in Los Angeles in 1899 by Mr. Phillips, and has long been known in the gas utility industry as a manufacturer of both forced air and gravity furnaces. J. A. Martin is general manager of the firm.

Utilization of Waste Heat In Gas Engine Cooling

• THE GAS ENGINE is rapidly extending its usefulness into many fields of power production, and no small amount of its success is due to the additional economy resulting from usage of the heat from the engine cooling water. The utilization of this otherwise waste heat should be considered a part of the engineering job, and with care and ingenuity many applications can be made. Presented here are excerpts from the Gas Engine Power Committee Report, D. W. REEVES, Oklahoma Natural Gas Co., Tulsa, chairman. The report, which was presented before the American Gas Association Annual Convention in New York, October 9-12, 1939, describes a cooling system which is particularly favorable to utilization of waste heat from gas engines. —(Abstract by G A S.)

BECAUSE of the fact that engine jacket water has been maintained at temperatures under 200° F., it has been difficult to obtain water for other purposes at satisfactory temperatures for direct use without additional heat being supplied from some outside source other than the engine itself.

Experiments have been carried on during the past few months in Southern California, following several years of development work abroad, in the high temperature cooling of internal combustion engines. By "high temperature cooling" it is meant that instead of maintaining jacket water temperature of approximately 160° F., the temperature is raised to 215° F. and over. In some instances, temperatures of jacket water of from 300° to 400° F. have been tried; however, at these higher temperatures, lubrication difficulties have been experienced. At the lower temperatures, from 220° to 250° F., no mechanical difficulties have been encountered.

Uses Unlimited

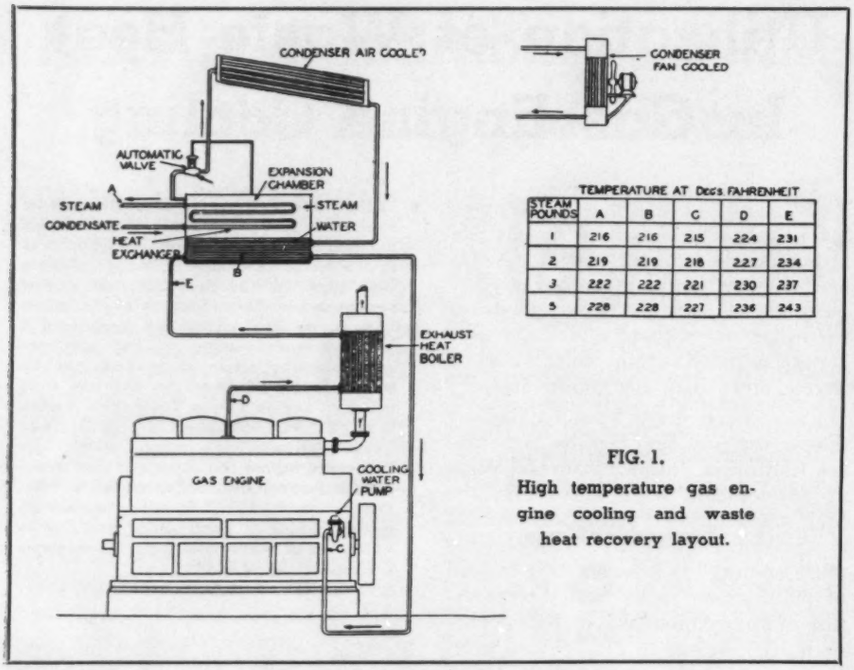
It will immediately be apparent that with waste heat from the jacket water at 212° F. and over, the uses for such heat in manufacturing are almost unlimited. For example, in the manufacture of ice the standard ammonia compressor plant can be very nicely powered with gas engines. Assume, for instance, a plant with an ice capacity of 40 tons per 24 hour day. A 100-hp. gas engine operating at 70 lbs. brake mean effective pressure to drive an ammonia compressor will be cooled with jacket water at a temperature of 220° F. and will have an exhaust temperature of 950° F. The amount of waste heat available from the engine jacket water will be approximately 250,000 B.t.u. per hour, with approximately 227,500 B.t.u. per hour available from the exhaust heat using a waste heat boiler of 65 per cent efficiency. This is heat which may be actually and economically recovered.

By applying the waste heat in an absorption refrigeration machine similar to the Williams Air-O-Matic, the refrigeration thus obtained may be used for reduction of ice-can water temperatures and fore-cooling of the liquid ammonia. The reduction in power expended per ton of ice manufactured will be as great as 25 per cent. Assuming that the present suction temperature is not already at the minimum operating point, the plant capacity may be increased by approximately the same amount, namely 25 per cent, without increase in gas consumption or power, by the device of increasing compressor speed, thus decreasing brine temperature.

It might be well to add that the average cost of an ice manufacturing plant is approximately $1000 per ton of capacity. The use of an absorption machine with waste heat obtained from high temperature cooling of the gas engines may be used to increase the plant capacity approximately 25 per cent with an increased plant investment cost of only about $200 per ton for the additional output, with of course the incidental reduction in operating cost of 25 per cent per ton.

There is an added advantage to be derived from high temperature cooling, namely the automatically controlled heat balance obtained thereby. For example, when an engine jacket water temperature of 160° F. is maintained with water circulating through an engine at the rate of approximately 50 gals. per minute, it is quite possible that there will be times when the consumer will not require the heat in the full 50 gals. per minute, or it will be to his advantage to use less than that amount.

When engine temperatures are maintained below the boiling point, for example, 160° F., the heat from the engine jacket water and exhaust, if used for outside purposes, must be recovered at a continuously uniform rate. If all of the heat is being absorbed in a heat exchanger at one time and only a portion of the heat is absorbed or



TEMPERATURE AT DEGS FAHRENHEIT

STEAM POUNDS	A	B	C	D	E
1	216	216	215	224	231
2	219	219	218	227	234
3	222	222	221	230	237
5	228	228	227	236	243

FIG. 1.
High temperature gas engine cooling and waste heat recovery layout.

used at another period during operation, the operating temperature of the engine so fluctuates as to cause considerable difficulty in operation. It is likewise essential that the temperature differential between incoming and outgoing water from engine water jackets be maintained at a minimum of not over 20° F. This is exceedingly difficult where the waste heat from the engine water jackets and exhaust is being utilized for outside purposes with temperatures under 212° F. At the higher temperature it is possible to take any portion, or all of the heat, without upsetting the balance in the engine.

The foregoing is, of course, only one of the many examples of how the new principle of high temperature cooling may be used in increasing the overall thermal efficiency of a natural gas power unit. It represents a great potential saving in operating costs where it may be used to advantage.

The operation of an engine using the high temperature method of cooling is best shown in the accompanying illustration, Fig. 1, which illustrates an installation where a condenser may be installed on the roof, either cooled atmospherically or by means of a fan. The expansion chamber B contains water at 212° F., which is at the boiling point and where it starts to liberate steam. The water leaves the expansion chamber, passing through the main cooling water circulating pump. By the time the water enters the engine, the temperature has dropped to approximately 211° F. Passing through the engine, the water will increase in temperature to approximately 220° F.

As the water leaves the engine and is passed through the exhaust heat exchanger or boiler, the temperature rises to 227° F. The water at 227° F. mingles with the water in the expansion tank, and is dropped to 212° F. The steam liberated in the expansion chamber may be led away through pipe A for any indirect heat usage desired, the condensate being returned to the expansion chamber.

An automatic valve F is installed in the line returning to the condenser. This valve is set from 1 to 2 lbs. above the pressure of the steam being used at A. Should the requirements for steam at A decrease or cease entirely, the pressure in the expansion tank will rise, the automatic valve F will open and the steam generated will pass through the condenser, from which it will return to the expansion chamber.

Usually atmospheric pressure is not sufficient for average requirements and in consequence, the pressure must be raised to obtain the higher temperatures. A table of temperatures at various points on the system is shown by sketch in the figure for pressures from 1 to 5 lbs. in the expansion chamber.

Referring to the figure, a heat exchanger is shown installed in the expansion chamber. This is only necessary where the water to be used must be conveyed to some other portion of the plant and not returned. In other words, it is strictly an indirect system. The word "condensate" is possibly a misnomer and should read "raw water." Where a tank of water is to be heated, the engine water (or steam from the expansion chamber) may be taken direct to a heat exchanger located in the tank itself and then returned as condensate.

Where the waste heat from the engine is desired for space heating, unit heaters or condensers may be installed wherever the heating is required and the engine water (steam from the expansion chamber) may be piped to and from the individual unit heaters used in such instances as condensers.

The high temperature method of cooling natural gas engines makes available from 4 to 5 lbs. of steam at 230° F. per brake horsepower developed by the engine. For example, with a 120-hp. engine operating at full load, driving a 75-kw. electric alternator, approximately 480 lbs. of 230° F. steam could be obtained from the engine for auxiliary heating.

■ ■

O. H. Weddle, Missouri Utility President, Dies

O. H. Weddle, 59, president and general manager of the Missouri Gas and Electric Service Co., Lexington, Mo., died recently after an illness of two days. He had been at the head of the company since 1936, when he succeeded L. F. Benz as general manager and George A. Mills as president, combining the two offices at that time.

Mr. Weddle's utility career began in 1901 as a utility company engineer. He was later promoted to master mechanic and superintendent. Five years later he became manager of an Oklahoma railway, and in 1917 he joined an ice and light company, and then started building transmission lines. In 1924 he became district superintendent of the Kansas Electric Power Co., later being promoted to the positions of district manager, vice president and member of the board.

■ ■

New Source Insures Gas Service at Chelsea, Okla.

The Oklahoma Corporation Commission, in an order issued October 14, authorized Mac O. Davis to furnish natural gas to the Gas Service Co., at Chelsea, Okla., for 25 cents per M c.f. at the city gate. The order was temporary, effective until December 14, when the situation will again be subject to review of the commission.

The commission previously had authorized the Unity Gas Co., Pressure Oil & Gas Co., and the Cooperative Co., operating supply lines, to discontinue service to the Gas Service Co., the distribution company at Chelsea, because of a shortage of gas. Mr. Davis secures his supply from wells near Chelsea.

■ ■

Blytheville, Ark., Invites Natural Gas Survey

The Blytheville, Ark., city council has invited the Arkansas Power and Light Co. to make a survey of the city to determine the feasibility of serving the residents with natural gas.

Should the public utility company decide to bring gas into Blytheville it will probably be piped across the Mississippi River from Ripley, Tenn.

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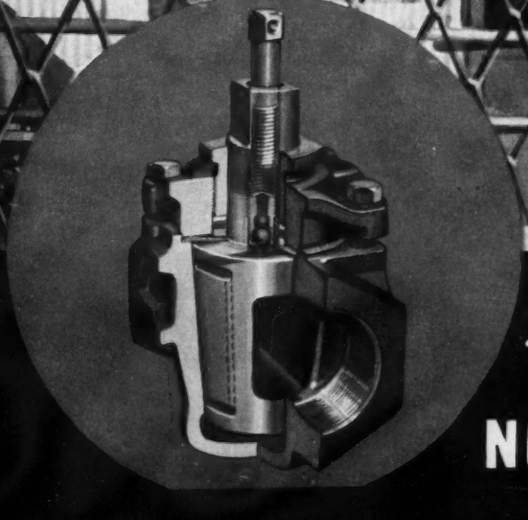

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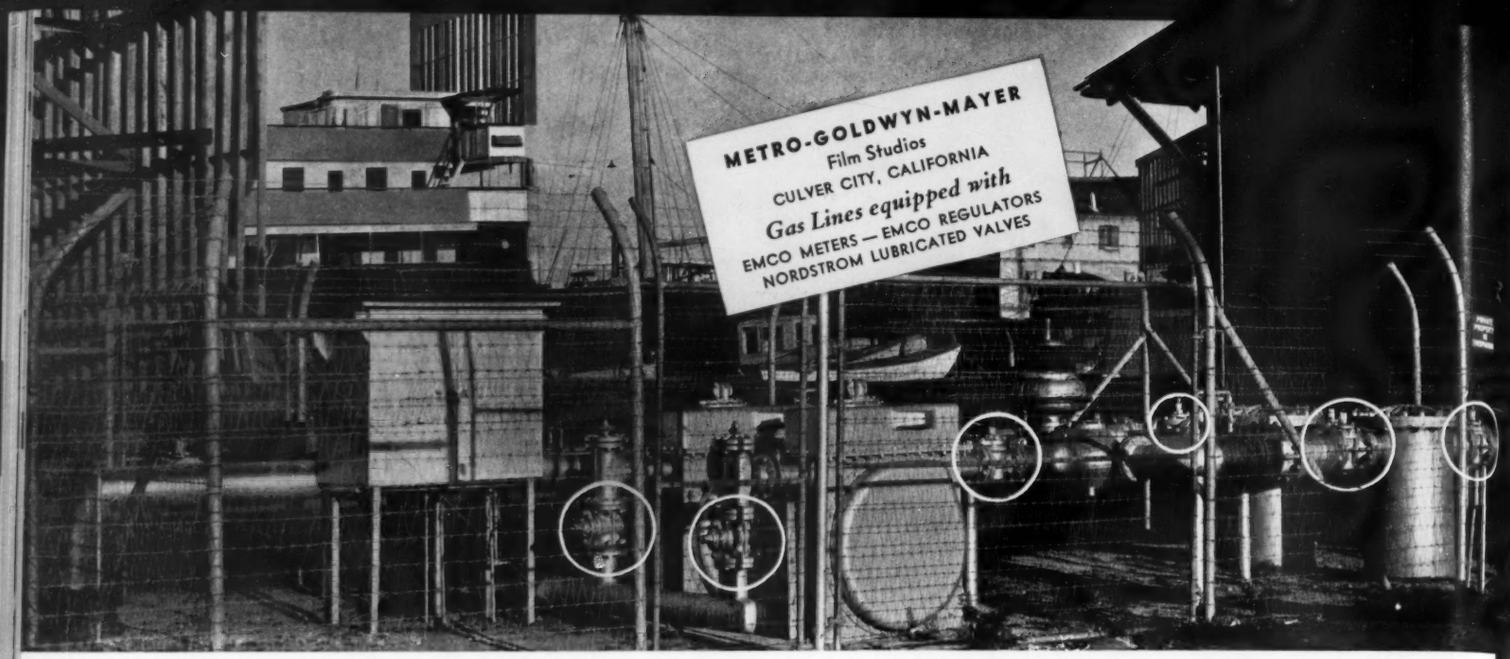

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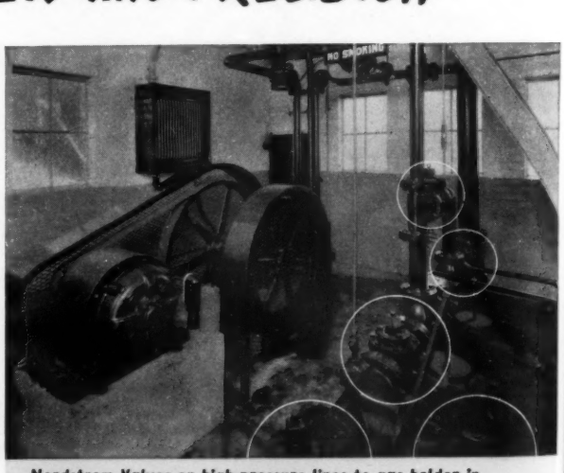

Nordstrom Valves on high-pressure lines to gas holder in Baltimore plant.

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A Deflecting Type Orifice Cap for Gas Ranges

• M. A. RICHFORD, Pacific Gas and Electric Co., San Francisco, Calif., in a paper, "A Deflecting Type Orifice Cap for Gas Ranges," presented before the Spring Technical Conference of the Pacific Coast Gas Association in Los Angeles, Calif., March 23 and 24, 1939. Mr. Richford's paper received the Honorable Mention Award at the Annual Banquet following the P.C.G.A. Annual Convention in San Francisco, Calif., September 9, 1939.—(Abstract by G A S.)

A general characteristic of gas range top burners in this territory, particularly "star" burners manufactured prior to 1934, is the small air shutter opening after adjustment with natural gas. This small shutter opening of top burners is even more noticeable in those older ranges which were converted from manufactured to natural gas by adapting the original orifice cap and reaming the adaptor orifice an exact size for the proper input. In most instances the shutters are almost closed, for any further opening causes the burner flame to be unstable, hard to light or to "blow off." Even though a top burner flame of good appearance and proper combustion is easily obtained with a minutely opened air shutter, such an adjustment is undesirable in that the small openings are subject to early clogging with grease and lint. As clogging takes place the flame gradually becomes softer in adjustment and finally yellow and sooty, causing annoyance to the customer in poor combustion and blackened utensils. This finally leads to a request for service. Consequently, if air shutters were wide open, the time required for an accumulation of lint and grease to seriously affect the flame by restricting primary air would be considerably lengthened, thus providing the customer with better service from his equipment and decreasing service complaints of this nature. From a service viewpoint a full open air shutter should be an adjustment requisite, but it is seldom that the openings even approach this, especially with older ranges equipped with fixed orifices, which generally are mere slits in width.

It has long been felt in this company that domestic top burner air shutters only partially open are the real cause of a sizeable percentage of customer requests for burner adjustments. A recent inquiry into service records in a number of our divisions indicated that service calls originating from this condition account for as much as 20 per cent of the total. In servicing these calls it is often only necessary to remove exterior grease, lint and dirt from shutter openings to return a good flame to the burner. The obvious way to prevent air shutters from becoming clogged or, at least, to prolong the time required for an accumulation to build up, is to have the primary air opening as large as possible; in other words, to open the shutter wide.

Three service practices have been employed by this company in the past to obtain more widely opened air shutters:

1. Increasing the port area by enlarging the burner ports or by increasing their number.

2. Using an orifice considerably larger than required and partially obstructing it by screwing the cap back on the adjusting pin.

3. Using a natural gas extension type orifice cap.

None of these methods is entirely satisfactory. Port drilling requires expensive sets of tools, while an obstructed orifice is a potential dust trap and will lose its adjustment if the cap is moved during cleaning or by tampering. The extension type orifice approaches a desirable adjustment in that it provides a fixed orifice and enables the shutter to be opened wide. However, the extension trimmer tool represents an item of maintenance and at the same time imposes additional labor on the serviceman in the cutting and trying necessary to obtain exactly the right length. Moreover, considerable whistling noise is produced from the jet expansion within the extension.

To meet the need of a noiseless orifice while at the same time retaining the desirable properties of the extension orifice led to the development of the deflecting type cap shown in Fig. 1.

The principle of the deflecting cap is the control of primary air entrainment by directing the gas jet away from the axis of the venturi tube. The more the jet is deflected "off center" the less will be the primary air entrainment and more widely open can the air shutter be set. No noise is produced because the jet issues from a flat surface.

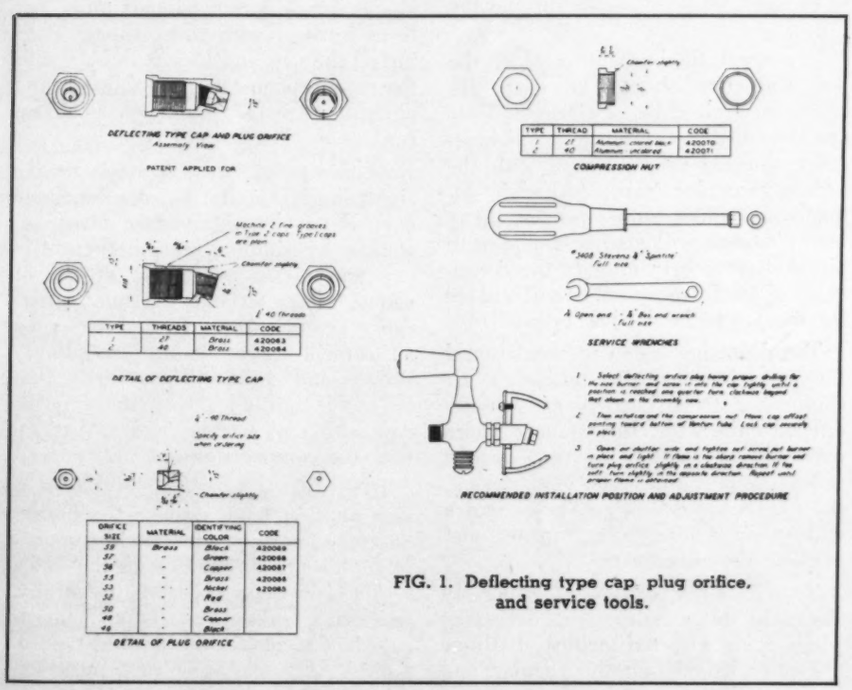


FIG. 1. Deflecting type cap plug orifice, and service tools.

Cap in Two Parts

The cap consists of two parts: the body of the cap and the plug orifice. The short deflected portion of the body is at an angle of 15 degrees with the axis of the main body. Likewise the orifice in the plug is drilled at an angle of 15 degrees with the longitudinal axis of the plug. This combination of angularities makes it possible to adjust the direction of the gas jet to any desired angularity of from 0 to 30

TABLE NO. 1. PERFORMANCE WITH NATURAL GAS OF A TYPICAL "STAR" BURNER WITH CONVENTIONAL AND DEFLECTING ORIFICE CAPS*

Type of Orifice Cap	*Air Shutter Position*	*Operation of Burner, Flame Character, Etc.*
I. Conventional Cap No. 57 M.T.D. Fixed Orifice	9% Open	Average Good Adjustment 170 B.t.u. Cu. Ft. Mixture in Burner Head
II. Conventional Cap No. 57 M.T.D. Fixed Orifice	100% Open	Mixture Too Lean Flame Cannot Be Lighted 125 B.t.u. Cu. Ft. Mixture in Burner Head
III. Deflection Cap No. 57 M.T.D. Fixed Orifice 7° Deflection	100% Open	Average Good Adjustment Air Gas Ratio 5.8/1 170 B.t.u. Cu. Ft. Mixture in Burner Head
IV. Deflecting Cap No. 57 M.T.D. Fixed Orifice 14° Deflection	100% Open	Very Soft Flame 206 B.t.u. Cu. Ft. Mixture in Burner Head
V. Deflecting Cap No. 57 M.T.D. Fixed Orifice 30° Deflection	100% Open	Yellow Tips in Flame 281 B.t.u. Cu. Ft. Mixture in Burner Head

*Regular size front burner with 40 Number 40 M.T.D. burner ports.

degrees with the venturi tube axis.

The plug orifice, as shown in the assembly view, is in a position of zero deflection and, as such, corresponds to a conventional cap in that the gas jet is directed along the axis of the venturi tube. In this position the maximum amount of primary air will be entrained. Minimum primary air entrainment is obtained by rotating the plug orifice just one-half turn in either direction. The adjustment of a burner then is simply a matter of opening the air shutter wide, followed by rotational adjustment of the plug orifice within the one-half turn until the proper amount of primary air is obtained.

A tight 40 running thread is used on the plug so that after an angularity adjustment no ordinary tampering can change its position as the plug after a time assumes a set affected by a seizure of the thread surfaces. Two threads are provided in the caps: 3/8 in.—27 and 3/8 in. — 40. The 3/8 in. — 40 threaded cap is distinguished by a fine double line machined into its body.

Comparative Performances

Comparative performances of conventional and deflecting orifices with a typical "regular" size "star" burner of 9000 B.t.u. per hour input appear in Table No. 1. In each case a fixed orifice was used and input kept at rating.

In actual practice, occasionally some giant size front burners having large venturi throats leading directly into the burner head will require full deflection. No need for greater angularity nor any instance of gas backing out of the air shutter openings has been encountered in over 15,000 ranges.

The compression nut is part of the deflecting cap assembly. Its primary purpose is to stop gas leakage, as it was found advantageous to purposely provide a loose fitting cap to accommodate varying thread diameters of different manufacturers. In addition, the loose fitting cap saves the servicemen's time since the cap and nut can usually be screwed into place with the fingers, wrenches being needed only to lock them in place. Finally, it functions to fix the cap in place so securely that no ordinary cleaning or tampering can move it to alter the final adjustment in any way. The compression nuts are made of aluminum or annealed copper and are soft enough to be squeezed down easily around the threads.

In general, the burners on which the deflecting cap should be used are easily recognized by servicemen. They are identified as top burners which require shutters nearly closed with the ordinary orifice cap. Although intended for older model ranges, many newer models will also be found with air shutters nearly closed; the deflection orifice in these cases will enable the shutter to be further opened.

The deflecting type cap can be used for oven burners also, although air shutters of these burners are usually opened quite wide. In instances where oven burner shutters are not opened sufficiently and linting-up is occurring, the use of the deflecting orifice and a wide open shutter will improve and prolong the adjustment.

To reduce the reaming of orifices in the field to a minimum, deflecting plugs with assorted orifice drillings are provided, filling the regular and giant burner requirements over the range of normal service pressures encountered. Each size has a distinctive color to enable the serviceman to select the proper plug from his kit without trouble. The various sizes and their identifying colors are given in Fig. 1. It is only occasionally that an orifice must be reamed.

The sizes of 59 to 52 M.T.D. inclusive cover ordinary requirements for natural gas while from 52 to 46 cover those for manufactured gas. Service tools suited for deflecting orifices have also been developed.

The preliminary operation of cleaning burner ports and thoroughly swabbing venturi throats should be carried out as usual. Burners having appreciable grease accmulations in the throats should be boiled in a soda solution and dried before making the adjustment since clean dry surfaces will enable dust, lint and grease vapors to pass on through the burner.

Preliminary Operation

Then remove the old orifice cap and screw on a compression nut. Size up the burner visually from a gas input basis and select an orifice size accordingly. Use the recessed socket in the handle of the flexible cable wrench to hold the cap while the deflecting plug is screwed tightly into the cap to a position which is judged to have sufficient deflection to properly control the primary air, for example, a little less than midway between maximum and minimum entrainment for back burners with long venturi tubes and about three-quarter of maximum for front burners with short tubes. Then install the cap and lock it tightly with the compression nut. Set and lock the air shutter in a wide open position, replace the burner and light it.

At this point if the flame is nearly right, but not quite, the precise flame desired can be obtained in many instances by simply rotating the entire cap and taking advantage of out of round characteristics of many gas range venturi tubes. In such cases the adjustment operations are exceedingly simple and quick. Then verify that the cap is tightly locked by holding the cap with one wrench and taking up with the compression nut.

If the flame is excessively lean or rich on first trial, remove the burner and turn the plug a reasonable amount in the proper direction with the 1/4-in. socket or box-end wrenches. Generally, one such subsequent adjustment is sufficient to obtain the desired type of flame. As a matter of fact, most ser-

vicemen are able after a little experience to select the proper orifice size and set the required deflection on first trial.

An improved mixture distribution in the burner head can often be obtained by a proper deflected direction of the gas jet. This is particularly noticeable where the short venturi tube of a front burner is a part of the star and contains burner ports at its outlet end. Many times these ports will not burn if the burner is being forced beyond its rating. By directing the gas jet towards the bottom of the venturi throat pressures can be equalized and the ports will have proper size flames thereon.

Deflecting orifices are now a standard service article in the Pacific Gas and Electric Co. The Marysville-Chico changeover of approximately 10,000 meters completed in December, 1938, provided an opportunity to observe their installation on a large scale. The majority of the top burners of ranges of these towns now use deflecting caps and have wide open air shutters.

Prior to the changeover a 550 B.t.u. carburetted water gas, 0.65 specific gravity, was served in the Marysville-Chico system. Air shutters of the majority of top burners were nearly closed. Extensive use was made of the deflecting caps in opening the shutters and removing their critical adjustment prior to the changeover. Later during the changeover it was simply a matter of exchanging plug orifices as the caps and compression nuts were already in place. This program prior to the changeover facilitated the work during the conversion.

Likewise, deflecting caps are now finding considerable use in our 550 B.t.u. manufactured oil-gas territory. They are especially useful in preventing excessive primary air entrainment in top burners of ranges designed primarily for natural gas but being used with manufactured gas.

■ ■

Utility Wins Judgment Against Service Commission

The Kentucky Natural Gas Corp., Owensboro, Ky., recently won its case in the Federal District Court against the Public Service Commission of Kentucky which was brought about by the Commission's objection to the gas company's increase in the wholesale price of gas at Owensboro. Judge H. Church Ford held that the Commission had no jurisdiction over the gas company because of its being a Delaware corporation engaged in production, purchase and wholesale distribution of gas in western Kentucky and southern Indiana, and engaged in interstate commerce. The Commission has declared its intention to appeal the case to the United States Sixth District Court of Appeals.

TABLE NO. 1. OPERATING DATA: SUPER-COOLING SYSTEM
(Central Hudson Gas and Electric Corp., Poughkeepsie, New York)

Item	*July and August*	*Full Load Conditions*
Hourly gas rate	183 M c.f.	400 M c.f.
Temperatures °F.		
Gas to super-cooler	80	90
Gas from super-cooler	58	50
Chilled water	57.5	45
Return water	62	50
Refrigeration, tons per 24 hours	24	95
Power, k.w.h.		
Chilled water pump	8	8
Condenser water pump	7	13
Steam, pounds per M c.f. gas	6.2	5.5

A Vacuum Cooling System For Gas Dehydration

• THE DEHYDRATION of gas has become of increasing importance in removing condensable water vapor from transmission and distribution lines in order to avoid corrosion and deposition of foreign substances in mains. In his report, "Ten Years of Gas Dehydration," presented before the American Gas Association Annual Convention in New York, October 9-12, W. L. SHIVELY of the Koppers Co., Pittsburgh, offers a new approach—dehydration by a vacuum cooling system. GAS has published numerous papers on dehydration: T. S. Bacon (June, 1938), J. V. Cowan (September, 1938), John Clark (June, 1939), Van Thompson (August, 1939), B. M. Laulhere and C. F. Briscoe (October, 1939), J. S. Powell (October, 1939).—(Abstract by GAS).

DESIRING to alleviate an irritating gum condition by preventing the deposition of both water and drip-oil condensate in their distribution system, the Central Hudson Gas & Electric Corp. has installed at its Poughkeepsie, N. Y., plant a novel type of super-cooling plant. The original function of this apparatus was to cool the gas (which is carburetted water-gas) at the holder inlet 5° to 10° F. below the low temperature of the distribution system and thus not only partially dehydrate the gas, but remove oil condensates as well, which latter may have contributed to gum deposits. The diagram, Fig. 1, shows this plant schematically.

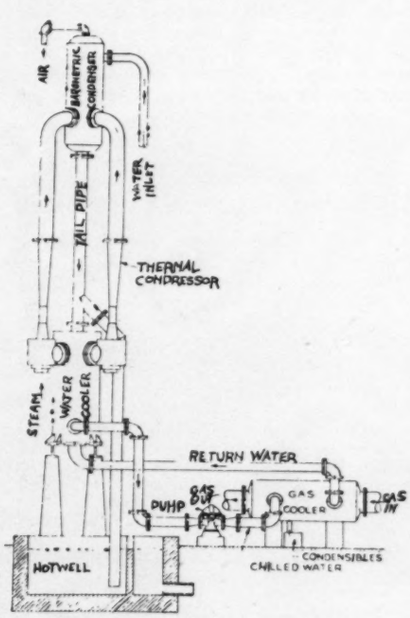


FIG. 1. Diagram of vacuum cooling dehydration system.

The description of this process is briefly as follows: Three multiple-jet steam vacuum-pumps exhaust the vapor and gases from a chest or chamber containing the cooling water of the system. The steam of these jet pumps is condensed by a common barometric condenser. The high vacuum created over the water in the chest causes it to boil, this boiling absorbing heat and chilling the water. The chilled water is circulated through a gas cooler of the indirect type provided with finned tubes to give a large heat transfer. The water from the gas cooler returns to the vacuum chest through a closed pumping system so that the energy required for circulation is merely the friction head of the system. The water, oily condensate, naphthalene, etc., condensed from the gas, flow through a seal into the drip-oil separator.

Table No. 1 shows data for typical operating conditions of the Central Hudson Gas and Electric Corp. during July and August and as computed for full load conditions.

TABLE NO. 2. OPERATING COSTS: SUPER-COOLING SYSTEM

(Central Hudson Gas & Electric Corp., Poughkeepsie, N. Y., July-August Operation)

Power:	Chilled water pump 8 kw. Condenser water pump 7 kw. 15 kw. total	
	$15 \times 24 \times 0.4c$	$ 1.44 per day
Steam:	6.2 lbs. per M c.f. gas $\frac{6.2 \times 183 \times 24 \times 30c}{1000}$	$ 8.17 per day
Labor:	Estimated @	$ 1.30 per day
Maintenance:	Estimated @	$ .50 per day
	Total daily operating costs	$11.41 per day

Costs per M c.f. gas treated $\frac{1141c}{183 \times 24} = 0.26c$ per M c.f.

From the above data operating costs may be computed for the July and August conditions. These are shown in Table No. 2.

These low operating costs make this system attractive where there is an adequate volume of cheap cooling water for the steam condensers. These use about as much water per hour as a brine dehydration system would require for 24 hours' operation; but where this water can be secured at pumping costs only this is not a burdensome requirement. The operation of the plant is simple and the maintenance has been quite low. Use of three jet pumps in parallel provides the necessary flexibility to meet varying load conditions. In the winter time it is not necessary to operate the plant, since river water is available for cooling at the necessary low temperatures. This plant was installed in October, 1934.

Improvement Gratifying

A number of other plant changes relating to gas conditioning were made at about the same time this system was installed so that it is not possible to attribute all of the substantial improvement in service conditions to the super-cooling unit above. But improvement in those conditions which may logically be attributed to the super-cooling unit has been highly gratifying. All the gas produced is compressed to 50 lbs. pressure and cooled to about 75° F., a stream of chilled water from the super-cooling unit being used on the last pass of the aftercooler in the summer months for the past two years. Drip pumping from low-pressure and medium-pressure mains and "freeze-ups" are a thing of the past. Complaints and stoppages in Poughkeepsie attributable to gum have shown a sharp decline from a peak value of 28 per 1000 meters per month in 1934 to less than 1 per 1000 meters per month for 1938. No untoward effects of any kind have been noted in spite of distributing a somewhat drier gas than is usual with brine dehydration plants.

■ ■

Michigan Towns Receive Gas From Arenac County Field

Natural gas from the Arenac County field has recently been made available to the consumers of Midland, Bay City, and Saginaw, Mich., through a 6-in., 45-mile pipe line built by the H. L. Gentry Engineering Co., Jackson, for the Northern Pipeline Co., a subsidiary of the Arenac Oil and Gas Co. The gas is delivered for distribution to Consumers Power Co. at a point two miles from Midland, where a regulating and control station has been built at the junction of the new line and the connecting line. Construction of the line was completed in about two months.

These three Michigan cities provide the largest outlet for the Arenac field, whose reserves are estimated to be between two and five billion cu. ft. According to Samuel Ball, division manager of Consumers Power Co., gas from this field will augment the company's supply from other sources, thereby strengthening and improving service for the Bay City-Saginaw-Midland area.

■ ■

Oklahoma Natural Ordered To Serve Sapulpa Customers

The Oklahoma Natural Gas Co., acting upon an order of the Oklahoma Corporation Commission, began natural gas service late in September to about 1400 homes in Sapulpa, Okla., which formerly had been served by the Sapulpa Gas Co. The latter company had suspended service after going into a receivership.

The Oklahoma Natural Gas Co. was authorized to use the empty gas mains of the Sapulpa Gas Co. in serving the Sapulpa consumers pending final adjustment of the emergency at Sapulpa.

■ ■

Votes 15-Year Franchise

Voters of Iowa City, Iowa, voted favorably on September 26 on a 15-year franchise to the Iowa City Light & Power Co. to serve that city with gas. A majority of 5158 residents favored the issue.

Requirements for Furnace Controls Now Available

THE task of preparing listing requirements covering furnace temperature limit controls, fan controls, and similar accessories has been assigned to the A.G.A. Subcommittee of Listing Requirements for Automatic Main Gas-Control Valves, according to a news release from R. M. Conner, director of the A.G.A. Testing Laboratories in Cleveland. The Laboratories will conduct a research investigation so that suitable performance standards can be prepared.

At a meeting held on September 13 the results of a detailed investigation of contemporary types of such equipment were reviewed by the Subcommittee and suggested performance standards covering temperature limit controls were approved with minor changes. These included suitable tests for dial calibration, sensitivity under extreme conditions of air velocity and rate of air temperature rise as well as continued operation tests to insure that the controls are capable of satisfactory performance over a prolonged period of service. Distribution to the industry for criticism of tentative requirements covering such equipment was approved by the Subcommittee.

Additional studies were recently completed on furnace fan controls actuated by the bonnet temperature of warm air furnaces. These are now in the hands of the committee for review and approval. After acceptance they will be printed in tentative form and submitted to the industry for criticism. It is expected that they will be in final form within the next few months.

■ ■

Illinois Utilities Group Holds Annual Meeting

Many gas industry leaders were included on the program of the general meeting of the Illinois Public Utilities Association held October 5 and 6 at the Knights of Columbus Building, Springfield, Ill. President E. F. Kelly, vice president, Central Illinois Public Service Co., Springfield, conducted the general sessions held both mornings.

F. X. Mettenet, vice president, Peoples Gas Light and Coke Co., Chicago, addressed the group on "Selective Advertising," and R. S. Agee, sales promotion manager, A.G.E.M., spoke at one of the general sessions on "Modern Gas Appliances." At the gas session R. B. MacDonald, association vice president, presided, announcing the principal speakers, C. F. Henness, manager, industrial gas sales, Public Service Co. of Northern Illinois, Chicago; C. W. Organ, manager, Springfield Division, Central Illinois Light Co., and R. G. Guthrie, chief metallurgist, Peoples Gas Light and Coke Co., Chicago.

■ ■

Aransas Pass, Texas, Grants Long Term Gas Franchise

J. B. Chimene, Houston, Texas, acting as trustee for the Aransas Pass (Texas) Natural Gas Co., has been granted a 50-year franchise to supply gas to domestic and commercial consumers in Aransas Pass. Under terms of the ordinance granting the franchise, Mr. Chimene must file a bond of $15,000 for the performance of the work, begin the laying of gas mains within six months, and complete the system in one year from the commencement of the work. Mr. Chimene's schedule of rates constitutes a reduction of approximately 30 per cent over the present cost of gas charged by the United Gas Co., which now supplies this territory.

S.G.A. 1940 Convention City Will Be Hot Springs, Ark.

THE 1940 annual convention of the Southern Gas Association will be held at Hot Springs, Ark., February 12-14. An invitation to meet jointly with the Natural Gas Department of the A.G.A. in Dallas, Texas, in May was declined.

The selection of that city for next year's session was made at the September meeting of the executive committee in Memphis, Tenn. This committee consists of C. H. Zachry, president of the Southern Gas Association; C. B. Wilson, H. Carl Wolf, L. L. Baxter, J. H. Warden, F. S. Kelly, and S. L. Drumm, secretary.

Among those who are already scheduled to speak at the Hot Springs meeting are Gov. Carl Bailey, of Arkansas, who will talk on "Equalization of Freight Rates in the Industrial Expansion of the South"; Miss Marion Dow, chairman of Home Service; C. B. Wilson, chairman of committee to promote business, and Walter Ford, whose subject will be "Industrial Advertising." A representative of the Arkansas Power and Light Co. will talk on "Your Company and the Public" and a speaker is yet to be selected for a paper on "The Liquefied Petroleum Gas Industry."

■ ■

H. L. Doherty Educational Foundation Completed

The Doherty Men's Fraternity and Doherty Girls' Sorority chapters of the Cities Service Co., Kansas City, have been informed of the completion of the organization of the Doherty Educational Foundation, and application for the scholarships may be submitted to Ralph A. Cornell, 60 Wall St., New York City, who is president of the Foundation.

The scholarship awards will be based upon the scholastic attainments and ability of the applicants. Also, the Board may inquire into character and talent. The purposes of the Foundation are to foster, encourage and aid in the education of, and to further educational opportunities for, sons and daughters of employes of Cities Service Co. and affiliated companies.

■ ■

Federal Power Commission Authorizes Gas Exports

The Federal Power Commission has granted temporary authorization to six gas companies for exporting natural gas until December 31. The companies are the United Gas Pipe Line Co., United Gas Corp., El Paso Natural Gas Co., Texas Cities Gas Co., Texas Gas Utilities Co., all of Texas, and Iroquois Gas Corp. of New York. The Commission, however, reserves the right to issue further orders to these companies prior to the extended date.

The five Texas companies export gas to Mexico, and the Iroquois company exports to Canada.

■ ■

Texas Utility Man Dies

Fred M. Lege, Jr., 58, vice president of Magnolia Petroleum Co., Dallas, Texas, and formerly executive vice president of Lone Star Gas Co., Dallas, died recently after an illness of several months. Mr. Lege began his business career as a telegraph messenger boy, and in 1914 became president of the North Texas Gas Co., Corsicana. Following this connection, he held executive positions in the Dallas Power & Light Co., Lone Star Gas Co., and Magnolia Gas Co.

Towns Seek Service Along New 240-Mile Gas Line

WITH the completion of several sections of the Northern Natural Gas Co.'s 240-mile natural gas pipe line from Sioux City, Iowa, to Minneapolis, Minn., natural gas service is rapidly becoming available to the citizens of southwestern Minnesota and northwestern Iowa towns along the line.

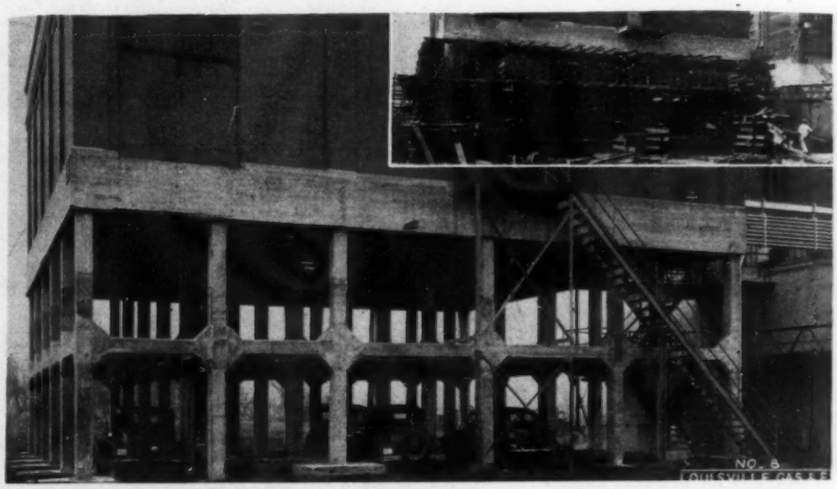
New Ulm was the first Minnesota town to receive natural gas through the new line. The natural gas replaces manufactured gas previously used, and is served by the Interstate Power Co., Albert Lea. Construction of a loop line that would serve the towns of Windom, Lakefield, Jackson, Worthington, Pipestone and Luverne is being undertaken by a new company known as the Minnesota Natural Gas Co., C. C. Henriksen, president. There is a possibility that the towns of Cleveland, Heron Lake and Mountain Lake will be added to the loop. In Worthington the gas will be served by the Allison-Williams Co., Minneapolis, recent purchasers of the plant and distribution facilities formerly owned by the Worthington Gas Co. The Allison-Williams Co. has guaranteed Worthington residents natural gas by Thanksgiving.

The Peoples Natural Gas Co., a subsidiary of the Northern Natural Gas Co., builders of the line, will serve the gas to the towns of Welcome, Truman, and Sherburn. According to Max J. Hendrickson, company representative, natural gas will be in Welcome shortly after the first of November. The company is establishing an office there.

A feeder line is to be built from the main line to Fairmont, and other lines will connect the smaller towns in that vicinity as they vote natural gas franchises. At Crookston, natural gas service is anticipated early next year, it was stated by J. V. Reynolds of St. Louis, president of the Peoples Gas Co. The company has recently improved its plant there at a cost of $20,000.

City mains are being constructed in the town of Chaska by the Minnesota Valley Natural Gas Co., and will be connected as soon as possible to the main Northern Natural line. The Minnesota Valley company has opened a branch office in Chaska with Stanley M. Johnson in charge. The town of Shakopee is expected to vote soon on the question of granting a 25-year franchise to the company.

Towns in Iowa receiving or expecting to receive natural gas through Northern Natural's line are Paullina, LeMars, Kingsley, Northwood, Manly, and Marcus. At Paullina the Peoples Natural Gas Co. is to serve the gas, which will be distributed through mains now being constructed by Monarch Construction Co., Pampa, Texas. Kingsley and Marcus have voted franchises to the Iowa Public Service Co., who will connect these two towns with the main line. The Peoples Gas and Electric Co. of Mason City has connected Manly and Northwood to the main line through short feeder lines.



The Louisville Gas and Electric Co., Louisville, Ky., has taken steps to protect its property from future floods (as occurred in 1937). Above is seen the Beargrass gas substation on "stilts." Hundreds of jacks were used in elevating the structure, and the inset shows ties used to support the building before the concrete "stilts" were set.

SALES Slants

On Getting Mrs. Prospect In A Buying Frame of Mind

• **THIS SERIES of articles dealing with sales fundamentals, which began in the Sales Slants department of the June, 1939, issue with a chapter entitled "Getting Yourself in the Proper Frame of Mind," is continued this month with Chapter 6, "On Getting Mrs. Prospect in a Buying Frame of Mind." These articles are not intended as a course of study nor do they aim to teach a new system of selling, but rather it is their purpose to present in a direct and unacademic manner a few of the fundamental principles on which the art of selling is based.—Editor.**

IN our last chapter we undertook to show how a sales demonstration may be built around the three decisions a prospect must make before he or she is prepared to buy. We were in the midst of the hypothetical case of a Mrs. Prospect who has come into your sales room "just to look around." You have shown her a new CP six-burner range, and she has exclaimed, "Six burners! I've always wanted a range with six burners." Now let us continue our analysis.

Remember, the first question you are attempting to help Mrs. Prospect answer is this: "Do I need a new gas range?" The very fact that she has come into your sales room to look around is evidence that she at least would like to have a new gas range. If she were perfectly satisfied with her present cooking equipment, it is quite unlikely she would be looking at new ranges. And that she is aware of her present range's deficiencies is indicated in her exclamation over the six burners on the CP model you showed her. But both the desire for a new range and the need for one are latent, waiting to be crystallized into a form which can be translated into action.

As a matter of fact, to digress a little into the field of psychology, the state of mind in which the salesman finds Mrs. Prospect at this moment is one encountered at the beginning of a very large majority of sales interviews. It is a state of mind which has its roots in the most basic element of human behavior: the tendency to form routine actions into habits. If you will check your own behavior over even a short period of time, you will be amazed at the number of habitual ways you have of doing things. You have a certain way of tieing your tie in the morning while you are dressing; you have a certain way of pulling on your shoes; you have a certain way of reading the morning paper, a certain way of lighting a cigarette, a certain way of walking, a certain way of talking, a certain way of sitting. The reason why you have established semi-automatic habit patterns in the way you do all these routine things should be fairly obvious: as you do the same thing over and over again day after day, less and less conscious effort is required, and consequently you tend more and more to do them in exactly the same way.

Now there are a few habits which are bad ones. A man, for instance, can develop a nervous way of drumming on the arm of his chair while he is talking, which is certainly a bad habit. But by and large, the little habitual ways we have of doing repetitious things are all to the good. The development of habit patterns which enable us to perform a wide range of diverse routine actions quickly and smoothly conserves our nervous energy. Without them the amount of effort we would have to put into the daily grind would be increased enormously.

But, you ask, what has all this to do with the state of mind in which we left Mrs. Prospect while we took this little excursion into the field of psychology? Well, it has this to do with it: nowhere do actions become more routine or habits become more firmly fixed than in the home. The woman who keeps house must go through the same habit-forming round of cooking, washing, dusting, ironing, and cleaning day after day, month after month, and even year after year. She repeats the same motions so many times in the course of a year's period that she cannot fail to make them practically automatic. And by systematizing her housework and establishing habitual ways of doing things, she gets through a tremendous amount of work in a very short time.

The result is that everything connected with her household becomes part of that habit routine. If she has an ice refrigerator, for instance, she gets in the habit of adjusting her routine to conform to the limitations of that kind of refrigeration. If she has a gas range without automatic temperature control, she learns to govern her baking and roasting accordingly. And the longer she uses a certain type of household appliance, the more fixed her habits which are involved with it are likely to become.

So it is with Mrs. Prospect when she comes into your store "just to look around." Vaguely in the back of her mind exists a certain latent dissatisfaction with her present gas range. This dissatisfaction has made her say, perhaps, as she passed your store window and saw a new model on display, "Isn't that a nice range. I wonder if they are as much improved as they say they are." She is thinking in terms of her habit patterns, and it is that habit pattern which must be the point of attack in the attempt to help her answer the question, "Do I need a new gas range?"

In our next chapter we will continue our analysis of this case.

■ ■

New Form of Blotter Pad Is Advertising Novelty

In an effort to present an old advertising idea in a new form, Kenneth Magers, publicity manager of the Cincinnati Gas & Electric Co., has developed a desk blotter of such unusual thickness, weight and serviceability that it has more than even chance to remain visible and of service in the accumulation upon the average business man's desk.

One-half of the upper side of the blotter bears a three months calender, beneath which is advertising copy. Upon the other half is a perforated scratch pad for notes, there being one dated page for every day of the current month.

■ ■

New Home for Union Gas

Union Gas System, Inc. opened its new headquarters office in Independence, Kan., on September 30. The remodeled building is constructed of many modern materials, such as glass block, aluminum venetian blinds and celotex wall paneling. It is entirely air conditioned. Fifty company employes are housed in the new building.

■ ■

Wins Direct Mail Award

For the sixth consecutive year Consolidated Edison Company of New York has been selected as one of the "fifty leaders of the year in direct mail advertising" in the Direct Mail Advertising Association's contest.

Elliott Taylor Returns As Eastern Editor of GAS

THE appointment of Elliott Taylor as Eastern editor of *GAS* brings back to the staff of this publication a member of the original group which founded its predecessor, *Western Gas*, in 1925. Serving first as associate editor and then as traveling representative of the magazine, he made periodic trips from San Francisco to the Atlantic Coast, resulting in a wide and varied acquaintance throughout the industry. Mr. Taylor's primary interest has always been in the advertising and merchandising aspects of both public utility and dealer activities, in furtherance of which he acted as publicity director for the Pacific Coast Gas Association.

ELLIOTT TAYLOR

Since moving to New York in 1937 he has devoted himself entirely to writing. In addition to writing numerous articles on home building, housing and the homestead movement, he recently collaborated in a dramatization of Mrs. Taylor's best seller, "Address Unknown," which is scheduled for Broadway production during the coming theatrical season.

The Eastern editorial offices of *GAS* have been moved to 381 Fourth Avenue, New York City.

■ ■

Montana-Dakota Co. Reports Successful Fall Campaign

The annual fall sales campaign of the Montana-Dakota Utilities Co., known this year as the World's Fair campaign, to date is one of the most successful in the history of the company, it was announced recently by E. B. Voneman, Minneapolis. The various divisions of the company are competing for first place in the number of sales made, the winning division to be awarded the Heskett trophy statue and a trip to the New York or San Francisco Fair for the manager. The Williston, N. D., division, V. M. Cleaveland, manager, now leads the contest, which will close November 25.

L. F. Bischel, of the Bismarck, N. D., division, has recently become a "barker," a title awarded employes who have earned 600 points in the contest. Other new barkers are M. E. McDonald, Mandan, N. D.; J. C. Walter and Jim Jerbak, Great Falls, Mont., all of whom have received the $15 prize given each employe who becomes a barker.

■ ■

$110,000 Sales Promotion Fund Set For CP in 1940

A $110,000 budget for 1940 national sales promotion of CP gas ranges, double the 1939 appropriation, has been approved by the 25 gas range manufacturers in the Association of Gas Appliance and Equipment Manufacturers now producing CP gas ranges. This was announced following a joint meeting of the Domestic Gas Range Committee of the A.G.A.E.M. with a similar committee of the American Gas Association held October 12 in the Hotel Pennsylvania in New York.

W. E. Derwent, vice president of the George D. Roper Corp., of Rockford, Ill., was re-elected chairman of the Domestic Gas Range Division of A.G.A.E.M.

Next year's sales effort will fall into two major campaigns: Spring (March through June) and Fall (September through December). Mailing pieces will be distributed throughout the campaigns to 2500 key utility men, 1000 CP range manufacturers and field men, and 16,500 leading dealer outlets.

To augment the A. G. A. E. M. field staff, the A. G. A. recently appointed eight regional managers. These promotion supervisors, enlisted from utility companies, will cover the entire United States on dealer and sales education. Assisting the regional managers in CP promotion are 48 state managers.

■ ■

Brooklyn Borough Surveys Its Water Heater Customers

Automatic gas water heaters were given substantial endorsement last summer by customers of the Brooklyn Borough Gas Co., Brooklyn, N. Y., when 60 per cent returns were received from 500 letters of inquiry sent out to determine the users' attitude toward water heaters.

The answers were almost universal in their endorsement of the convenience and inexpensiveness of water heating by gas.

■ ■

Mississippi Utility Enters Fall and Winter Campaign

A fall and winter sales campaign, called the "NO means GO" campaign, was launched recently by the Mississippi Power and Light Co., Jackson, Miss. The slogan was explained to company employes and cooperating dealers to mean that the natural opportunities everywhere will allow the company to GO forward during the 14-week campaign.

Be Sure To Tie-In Your Ads, Says A.G.A. About New Film

THAT new gas appliances are the beginning of modernization is vividly portrayed in the new motion picture entitled, "The Housekeeper's Daughter," Hal Roach-United Artists feature that provides wonderful advertising for gas appliances and a modern kitchen.

It was first released on October 26 and will be shown throughout the country. As it moves from town to town it affords local appliance sales organizations exceptional opportunity to capitalize upon the influence it will exert on all audiences in emphasizing the beauty and serviceability of CP ranges, Electrolux refrigerators, and gas service in the home.

The American Gas Association is urging dealers everywhere to consult with local theater managers to determine dates of local showing and then to tie-in their newspaper advertising copy to the theme of the motion picture. The A.G.A. has prepared mats of one piece of appropriate tie-in copy that are immediately available to appliance dealers upon request.

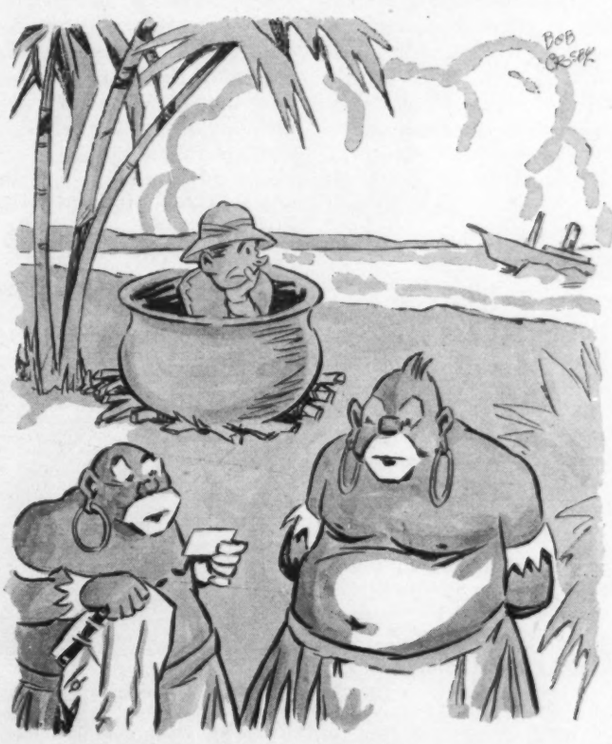
It is urged that copies of all local tie-in advertising be forwarded to the A.G.A. for later promotional purposes.

■ ■

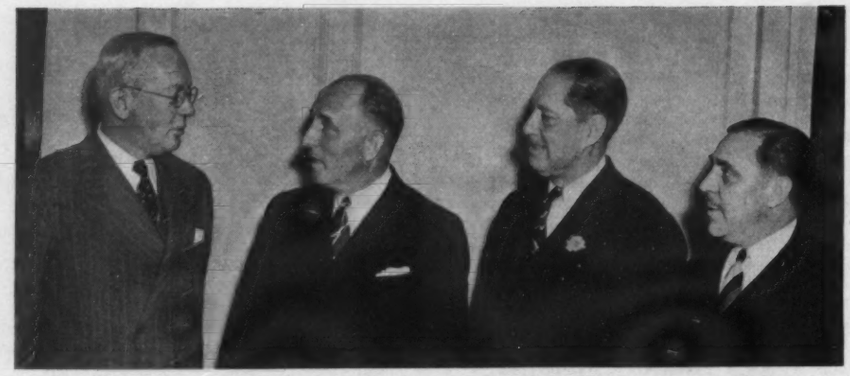
New Gas Mains Installed

The Arkansas-Louisiana Gas Co., Shreveport, La., has recently begun construction of a 12-in., 2000-ft. gas main to Pine Bluff, Ark., from New Highway. The new main is to be all steel welded, F. D. Shanks, company manager at Pine Bluff, stated.

DOTTED LINE ROSCOE



"It sez, 'D. L. Roscoe, Acme Gas Company. You can do it better with gas—' "



A. P. Brill (left), newly-elected vice president of the Association of Gas Appliance and Equipment Manufacturers, has the undivided attention of his associate officers who (left to right) are: John A. Fry, new treasurer; E. R. Guyer, Cribben & Sexton Co., retiring president; and C. W. Berghorn, managing director of the Association.

Adams Named A.G.A.E.M. President at N.Y. Meeting

INCREASED national sales promotion and advertising, constant modernization and improving of appliances and the adoption of the strictest regulations concerning the performance requirements for appliances were given as the reasons for the ever-growing extent of the gas appliance manufacturers market by Retiring President E. R. Guyer of Cribben & Sexton Co., Chicago, in his address before the fourth annual meeting of the Association of Gas Appliance and Equipment Manufacturers at Hotel Roosevelt, on October 9, which attracted utility men and manufacturers from every section of the country.

A principal event at the meeting was the election of officers (and directors) for the fiscal year 1939-40. Frank H. Adams, vice president and general manager of the Surface Combustion Corp., Toledo, Ohio, was elected president. Mr. Adams is a director of the American Gas Association. A. P. Brill, president, Ruud Manufacturing Co., Pittsburgh, was elected vice president, and John A. Fry, president, Detroit-Michigan Stove Co., of Detroit, was elected treasurer.

Newly elected to the Association's board of directors were: Louis Ruthenburg, president, Servel, Inc., Evansville, Ind.; L. R. Mendelson, president, Hotstream Heater Co., of Cleveland; E. C. Adams, president, Adams Brothers Manufacturing Co., of Pittsburgh; Walter L. Seelbach, secretary and treasurer, Forest City Foundries Co., Cleveland; J. C. Diehl, chief engineer, American Meter Co., Erie, Pa., and W. A. Lean, general sales manager, Wilcolator Co., Newark, N. J.

F. E. Sellman, vice president, Servel, Inc., who for the past four years has been chairman of the Association's Gas Refrigerator Division, was named chairman of the Association's Advisory Council.

Merrill N. Davis, executive vice president, Dresser Manufacturing Co., of Bradford, Pa., was chairman of the General Nominating Committee. C. W. Berghorn, of New York, is managing director and secretary of the Association.

In accepting the presidency, Mr. Adams cited the remarkable extension of gas service during the past 10 years and stated that manufacturers had kept pace by constantly seeking to improve their products. George E. Fraser of Chicago told the delegates that better business lies in taking advantage of the potential domestic replacement market rather than in placing too much reliance on export business.

Reviewing the Association's activities during the past year, Mr. Guyer named as most significant the broadening in scope of sales promotional efforts. He stated that a recently concluded fourth national sales promotion campaign conducted by the Association's Gas Water Heater Division maintained an enviable record during the years that the Division's promotional campaigns have been in effect.

Frank H. Adams (right), who was recently elected president of the Association of Gas Appliance and Equipment Manufacturers, and (left) F. E. Sellman, Servel, Inc., retiring treasurer, now chairman of the Advisory Council.

Mr. Guyer stated that through intensive promotion the CP gas range has now been accepted, in the short space of a year, as the most superior cooking appliance on the market. He pointed out that emphasis was being placed on the replacement of obsolete ranges, the creation of new markets, and the supplying of new homes.

Mr. Guyer also called attention to the recently concluded sales contest promoting gas refrigeration which was conducted by Servel, Inc., their seventh annual campaign, and sponsored by the Association. Emphasizing the success of this endeavor, he said: "I believe that the aggressive sales promotion policy that Servel has continued during the past several years has much to do with the ever increasing popularity of gas refrigeration."

Discussing the inter-relationship of the Association's various product divisions, Mr. Guyer said that the membership was aware of the increasing importance placed on statistical data. He said that trends in production, sales, etc., were indicative of general business activity within the industry and were important in making future plans.

■ ■

Bureau of Standards Holds Fifth Corrosion Conference

More than 100 technical men from Southern California utilities operating underground structures gathered October 17 in the auditorium of the Southern California Gas Co., Los Angeles, to hear K. H. Logan of the National Bureau of Standards address the Bureau's Fifth Los Angeles Corrosion Conference. W. M. Henderson, superintendent, Southern California Gas Co., was chairman of the meeting.

Mr. Logan's paper reviewed by comparison the methods for determining the corrosivity of soils, and its presentation was accompanied by much discussion from the attending delegates. Mr. Logan will again discuss this topic at the American Petroleum Institute meeting in Chicago, November 13-17.

■ ■

Sac City, Iowa, Votes For Municipal Gas Plant

The citizens of Sac City, Iowa, recently voted for the construction of a municipal artificial gas plant and distribution system. The final authority for the plant's construction, however, rests with the city council, which has not yet rendered a decision.

According to the question voted, the system would not exceed a cost of $60,000 and would be financed by revenue bonds payable out of net earnings of the gas plant and distribution system without the incurring of any indebtedness therefor by the city.

Petroleum Institute Plans Twentieth Annual Meeting

MORE than 3000 oil men are expected to attend the two general sessions, the 16 group sessions and more than 90 committee meetings, when the American Petroleum Institute's 20th annual meeting is held November 13 to 17 in the Stevens Hotel, Chicago. More than 50 addresses are scheduled on the speaking program.

An innovation this year will be the convening during the Institute's sessions of an Interstate Conference on Automotive Taxation sponsored by the American Petroleum Industries Committee.

New importance is attached to elections this year because revision of the national petroleum trade association's by-laws has placed membership of the board of directors at 110, plus ex-officio members comprising elected officers of the Institute, and a complete new board is to be elected on the basis of a revised schedule of representation. Eight national officers of the Institute, and 40 members of divisional general committees also are to be elected.

Guest speakers for the Institute's general sessions include Dr. Joseph E. Pogue, petroleum economist, of Chase National Bank, New York; Paul G. Hoffman, of the Studebaker Corp., South Bend, Ind.; and Barclay Acheson, associate editor of *The Reader's Digest*, Pleasantville, N. Y.

■ ■

Utility Extends Insurance Benefits of Employes

The Washington Gas Light Co., Washington, D. C., whose group program adopted in 1931 provides approximately 1600 workers with more than $3,600,000 life insurance, supplemented by sickness and accident benefits, has expanded the plan to include benefits payable in case of hospitalization and surgical operations. Announcement of the additional coverage was made by Marcy L. Sperry, president of the company.

A special feature of the new arrangement is a provision which enables employes to have hospitalization benefits extended to certain classes of dependents.

The group plan is being underwritten by the Metropolitan Life Insurance Co. on a cooperative basis whereby the employer and employes share the cost.

■ ■

Power Commission Hears Accounting System Plan

The Federal Power Commission held a public hearing recently on the proposed plan to have a uniform system of accounting for natural gas companies subject to the provisions of the Natural Gas Act. The Commission is composed of Clyde L. Seavey, chairman, Claude L. Draper, vice chairman, and Commissioners Basil Manly, John W. Scott and Leland Olds. Many natural gas companies were represented at the hearing. Charles W. Smith, chief of the Commission's Bureau of Accounts, Finance and Rates, explained the proposed system.

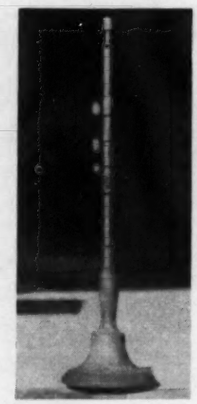
■ ■

Wisconsin Co. Remodels

The Wisconsin Gas and Electric Co., West Bend, Wis., has recently remodeled its office building to provide more store room, garage facilities and office space. The ground floor of the building now houses the heating system, garage, and distribution office, while the second floor contains locker space and meeting place for employes of the organization.

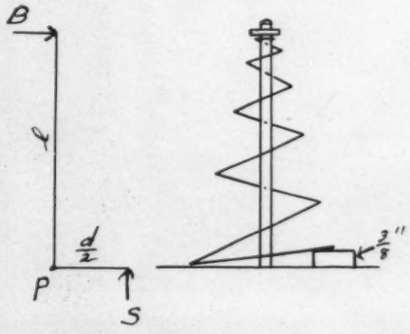
Paring the Maintenance Costs of Gas Engines

THE State Line Oil Co.'s pump station, equipped entirely with engines and pumps transferred from older installations elsewhere, seemed to be a stand-by or "payroll" job for the nearby Oilfields Machine Shop. Chief in the job-providing units were the vertical gas engines used for pump drives. Hardly a month passed that the shop did not press out and replace guide bushings in from three to six cylinder heads. And, almost invariably, the repair order would also call for installing a new exhaust seat, with the consequent regrinding to boost maintenance costs.



The illustration above shows the gas-eroded stem of valve operating with shimmed spring. Localized guide wear and cramping caused improper closing and hot exhaust gases did the damage.

Following a visit to the station while a unit was being dismantled for one of the periodic head jobs, the shop superintendent felt sure he discovered the reason for frequent guide replacement. As the valve springs weakened in service, the engineers were following the time-honored plan of shimming one side of the base of the spring with a wedge, nut, or anything else handy of the proper thickness. Since this increased spring tension, and the annoying valve slap ceased, the plan was not questioned.



Diagrammatic sketch of valve spring canted by shim wedged under one side of bottom coil, and (left) diagram showing force B required or load carried by guide to resist or equalize thrust set up by shimming at S.

Sketching a spring with the unbalanced lift as given by use of a shim, and laying out resultant lever arms, the shopman proved to the chief engineer that the unbalanced spring force, with a 100-lb. spring, set up a push or side load at the top of the guide equal to 11.7 lbs. with the valve closed, increasing to 12.5 lbs. when fully open. This side thrust, being unbalanced, resulted in rapid guide wear, permitting eventual canting or cocking of the valve at an angle with the cylinder head, resulting in improper valve seating, blow-by and rapid loss of power.

Once convinced that the shims were at fault, the station management had all springs calibrated for tension variation from engine manufacturer's standards, and then had made up several sets of graduated spacer rings to fit between the locking collar and the top of the spring. By installing one of these spacers at time of valve grinding, proper tension could be assured. And, if slap developed, after prolonged operation, it was the work of but a few minutes to clamp the valve at the top of the guide, compress the spring slightly, and slip another spacer under the collar.

■ ■

Empire State Association Holds Annual Convention

The fourth annual convention of the Empire State Gas & Electric Association was held in Rye, N. Y., on October 19-20 under the general chairmanship of Clarence L. Law.

Among the speakers at the two business sessions were: Edward P. Prezzano, president, Westchester Lighting Co., and president of the Association; Conrad N. Lauer, retiring president of the A.G.A.; W. C. Kellogg, president, Edison Electric Institute; Dr. W. I. Myers, Cornell University; Davis M. DeBard, vice president, Stone & Webster Service Corp.; Herbert C. Davidson, vice president, Consolidated Edison Co., of New York; Milo R. Maltbie, chairman, New York Public Service Commission, and Hall Henry, assistant to the president, New England Gas and Electric Association.

■ ■

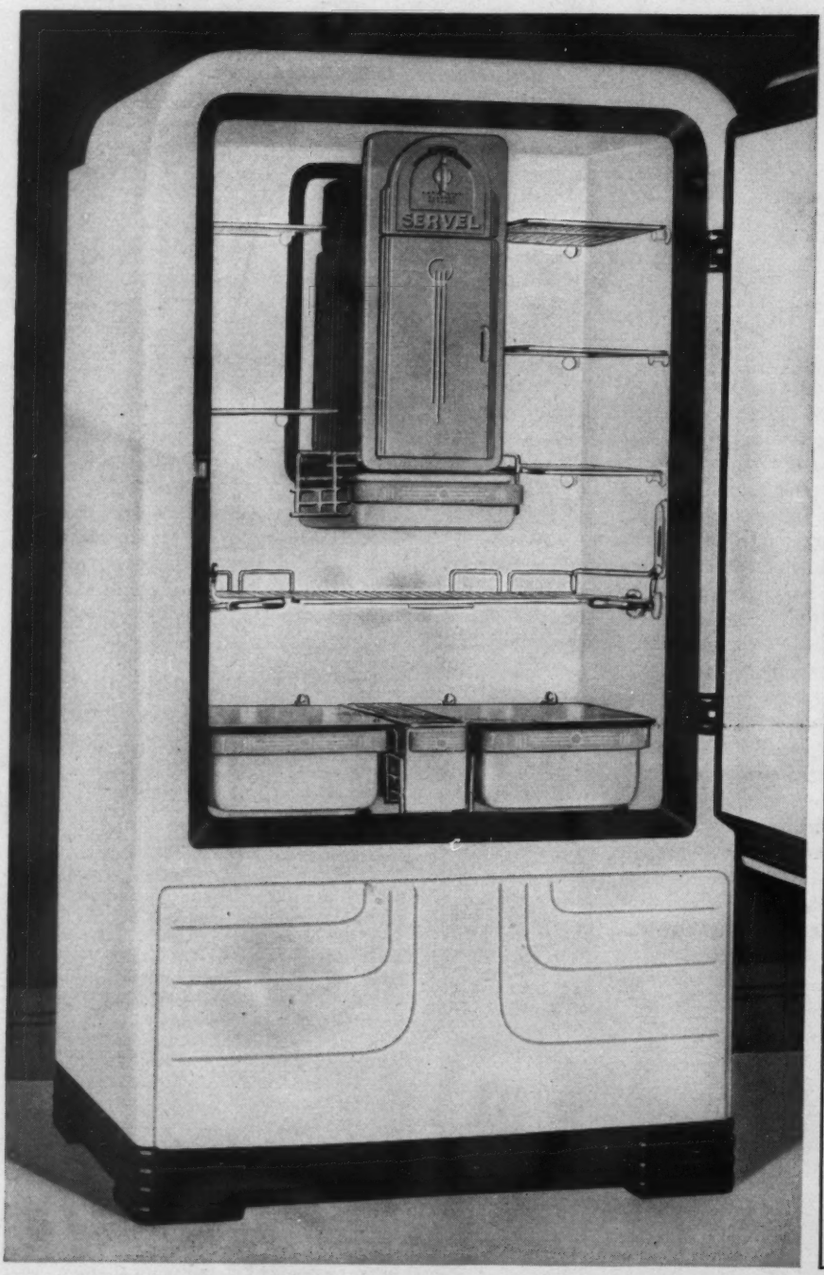
Hawarden, Iowa, Approves Natural Gas Franchise

At a special election held in Hawarden, Iowa, on September 14, voters approved a 25-year gas franchise for the Hawarden Natural Gas Co.

Clauses in the franchise permit the city to buy out the company at the end of five years, if desired, or at the end of any two-year period thereafter. Laying of mains will await signing of contracts with users.

GAS REFRIGERATION SETS

PRESENTING SERVEL ELECTROLUX— NEXT YEAR'S FINEST REFRIGERATOR . . .



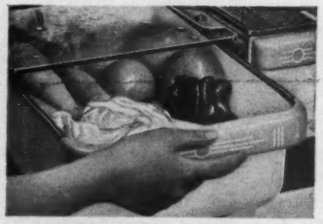
With the famous silent freezing system with **NO MOVING PARTS . . .** *plus new conveniences and flexibility*

IT'S A BEAUTY! Your new gas refrigerator has what it takes to help you win new customers, increase load, build net income!

This year more and more people, in both the new and rapidly growing replacement markets, are looking for the very advantages they can get *only* in the gas refrigerator.

And besides . . . you've a real news story, too . . . you can offer dry cold *and* moist cold . . . and an adaptable interior.

DRY COLD—MOIST COLD SERVEL OFFERS BOTH



Moisture falls like dew from the under side of glass cover . . . keeps fruits and vegetables garden fresh.

Dry or moist meat storage tray permits you to have dry cold or moist cold simply by changing position of cover.

LIFE BEGINS AT '40 . . .

A New Pace For 1940

BACKED BY AN OUTSTANDING NATIONAL ADVERTISING AND SALES PROMOTION PROGRAM

A NEW PACE IS SET for 1940 . . . not only by the gas refrigerator . . . but also by the exciting, informative ads that are going into the Nation's greatest publications to help sell gas refrigeration.

There's more than a merchandising profit in it for your company if you cash in on this . . . for gas refrigeration not only pays its own way, it protects your present load, stimulates the sale of other gas appliances, publicizes the modernity of gas service, promotes "Gas for All 4 Jobs."

The new Servel Electrolux and the advertising behind it are setting a new pace for gas refrigeration in 1940!

NEW STRATEGY IN STREAMLINED PROMOTION

Servel's sales promotion sets a new pace for 1940, too! The new Home Presentation Plan, shown below, that lets salesmen fit their story to the prospect is a fine example.

Which refrigerator do people choose who've had experience?
Important
ALSO ON BOTTLED GAS TANK GAS or KEROSENE
MORE than 15,000,000 messages monthly will appear in such publications as Life, Liberty, The Saturday Evening Post, Good Housekeeping, The American Home, Better Homes & Gardens.

The New 1940 SERVEL ELECTROLUX Gas Refrigerator

FOR GAS REFRIGERATION

THE WOMAN'S *Viewpoint*

Home Service—The Mirror of Customer Opinion

• **GLADYS B. PRICE, Southern California Gas Co., Los Angeles, Calif., in a paper, "In the Mirror of Customer Opinion," presented before the Commercial Section at the 21st Annual Convention of the American Gas Association, New York, N. Y., October 9-12, 1939.—(Abstract by GAS.)**

STRANGE as it may seem, the gas industry has for the past 15 or 20 years had a Mirror of Customer Opinion which is infallible, one which truly reflects the thinking of our feminine customers. But it has been only recently that the customer's opinion was considered valuable. Consequently, the importance of Home Service as a Customer Mirror has never been realized, nor has the fullest use been made of its possibilities.

During these last 15 years one of the most important changes has been that the buyer of today is no longer the trusting, gullible woman who has saved her dollars until she can buy a new gas appliance for cash. The fight for the consumer's dollar includes all manner of persuasiveness and Mrs. Modern now demands, and gets, the best she can for her money. Salesmanship is a science under these conditions and the mirror of customer opinion says that, as an industry, we must modernize our selling efforts to appeal to the modernized buyer. Salesmen will have to put as much glamor and sales appeal on a gas appliance as the automobile men do for new cars, or the customer will buy a new car, or a new hat, or a permanent wave, or possibly an electric range, or whatever else has more appeal. Let's wake up to the fact that a gas range must be interpreted to the customer as something that is indispensible to her job as a homemaker, something that gives her convenience, beauty, health and economy.

Since we are becoming more and more dependent upon dealers for gas appliance merchandising, it seems altogether reasonable that utility home service should give dealer salesmen, as well as our own, the story of what women want to hear about gas appliances. This can be best accomplished through demonstration methods and is not a new story to Home Service, but certainly a new one to the majority of our sales force and executives.

Arrangements have been made in our company whereby any salesman may bring in a customer whom he cannot sell. Most of these are women who are more than half sold on the fabulous stories told about electric range performance. More than likely they have been comparing their eight year gas range with a new electric one. A Home Service girl is assigned to the job of proving that the CP gas range will not only do a better job but a faster one. So far every woman customer, to whom one of these demonstrations has been given, has purchased a gas range. Now the point is that since both the salesman and customer are so impressed with the actual performance of the range, it follows our women customers want to be shown the superiority which we claim.

The second point in the Mirror of Customer Opinion is that the industry has taught its customers to expect the things which it claims for its merchandise. Since convenience sells more merchandise than any other thing, our customers are demanding that they actually get conveniences and Home Service hears all the complaints regarding the things which do not work on our gas appliances. In the main, they are little things, but to the customer they come under the heading of annoyances rather than conveniences. Men seldom appreciate the fact that a gas range to a woman is the equivalent of an indispensable piece of equipment to his job.

A gas range must first of all be an engineering project, but it must also be the housewife's cooking implement. There is also wide divergence of opinion as to the proper operation of a gas range, but one thing needed is closer cooperation between Home Service departments and the manufacturers. Home Service will before very long make an effort to coordinate the information which is gleaned from customers and present it to the manufacturers in a usable, practical form. This is essential if our Customer Mirror is to reflect the thing which we wish to see.

And finally, all are aware of the ever-increasing consumer movement. Various interpretations have been made of the organization and the work which it does, but in the mirror of customer opinion, Home Service has always been, and should always be, the Consumer Education Department for the gas industry. As Home Service sees the customer, she wants facts, figures and truth, dressed up to appeal to her and fit her needs. This, in brief, should be the creed of consumer education. May I urge you, then, to look upon your own Service Department as the Mirror of Customer Opinion, to consult it for sales trends, as a check on service being rendered customers, and finally, as the Good-Will Department, the one department in the whole organization which can talk to your customer about her homemaking job.

■ ■

Gas Service Co. Places Home Service Employes

Several new members of the home service department of The Gas Service Co., Kansas City, who have been training under the supervision of veteran home service directors, have been sent recently to various branch offices of the company.

Helen Lillibridge, who has been working under Doris Ingle at Wichita, Kan., has been sent to St. Joseph, Kan. Marion Brannon, who has been in St. Joseph under Ellen Potter, has been transferred to Topeka, Kan. Virginia Johnson, who has been with Jewel Hensley at Topeka, will hereafter be at Hutchison, Kan., and Harriet Potter, who has been training under Louise Peterson of the Hutchison office of the company has been placed in Wichita.

■ ■

Kansas Utility Employs Home Service Advisor

A new service department has been organized by the Baxter Springs Gas Co., Baxter Springs, Kan., with Lillian Peckham as advisor for the department. Her duties include demonstrations in homes and weekly cooking schools. The office of the company has been recently redecorated and remodeled, and a model kitchen installed for Miss Peckham's use.

■ ■

All-Gas Kitchen Opened

The Ohio Gas Light and Coke Co., Napoleon, Ohio, has recently opened a newly-equipped, all-gas demonstration kitchen. Special demonstrations will be conducted by Helen Milner, in charge of the company's home service activities in towns near Napoleon.

WEDGEWOOD

THE ARISTOCRAT OF GAS CIRCULATING HEATERS

Console Heaters

Gas THE MODERN FUEL

THE FAVORITE AMONG BUYERS EVERYWHERE ON THE PACIFIC COAST

The beautiful WEDGEWOOD *Console* Gas Circulating Heater, by popular acceptance, is the outstanding favorite among buyers everywhere. Scientifically designed to deliver the maximum heat from a minimum of gas consumed, the WEDGEWOOD *Console* gives real economy in operation. No fuel is wasted. Distinctly modern and attractive in appearance, this lovely Console Heater is especially noted for its symmetry of lines and harmonizing beauty.

The heater lights itself automatically. No fires to kindle, no soot and no ashes. Just clean, healthful, comfortable, convenient heat. Can be thermostatically equipped. Low flue design allows it to fit any fireplace. It is truly the finest gas heater in all WEDGEWOOD history.

LOVELY NEW HARMONIZING FINISHES

Attractive color combinations have been created for the new WEDGEWOOD *Console* Heater . . . a soft Morocco finish in two colors—Sandtone with contrasting base and band—and a warm, Seal Brown. The Hammertone finish with deep rich coppertone coloring is entirely new. WEDGEWOOD colors blend with the shades and tones of modern rooms.

Three Practical Sizes

To fit the requirements of large or small homes, WEDGEWOOD offers three convenient budget-fitting sizes. Several rooms can be kept comfortably warm and cheerful with any one of these sizes. Easily installed in any fireplace without the use of special fittings.

•

A. G. A.

Approved

•

ALWAYS WEDGEWOOD QUALITY—MAKES FRIENDS FOR GAS

JAMES GRAHAM MANUFACTURING CO. • LOS ANGELES • SAN FRANCISCO • NEWARK, CALIF. • PORTLAND, ORE.

YOU can use

Here is a reliable, simple, solenoid valve, created by General Controls, which has gained universal acceptance in a wide range of industrial uses because of its relatively low cost of operation.

this gas valve

It is the General Controls Type K-3B, a magnetic, current-failure, quiet, two-wire valve which opens and closes the fuel line supply at the demand of a room thermostat, limit control, or similar device.

in wide range

It is widely used for controlling gas to warm air furnaces, gas-fired boilers, industrial furnaces, conversion burners, and other applications. It is available in the greatest range of sizes in magnetic gas valves, from 3/8" to 6" I.P.S., inclusive.

of industrial uses

Standard size valves will handle up to 5 lbs. gas pressure. Valves for higher pressures can be obtained on order. Write for Catalog. GENERAL CONTROLS CO., 450 East Ohio St., Chicago, Ill. 267 5th Avenue, New York City.

GENERAL CONTROLS
... they're just right

Self-Regulation Advocated For Major Fuel Industries

THE Natural Resources Committee of the United States Chamber of Commerce has published a statement opposing the tendency of Governmental agencies to assume that there is a need for Government regulation and coordination of the country's fuel and power supplies.

The Committee reports that the Government already partially regulates water power, coal and natural gas, and that petroleum, the only fuel not yet under some degree of Federal direction, is now the subject of proposed legislation, and with much official backing. The Committee, always consistently supporting the retention of State control over natural resources, urges voluntary arrangements by the operators in the respective industries toward measures of self-regulation that might forestall undue Governmental interference in this large segment of private business.

The Committee also declares that not only is the productive capacity of the electric power, coal and gas fields sufficient to meet any national emergency in sight, but those industries are in a position to be greatly expanded as possible unknown needs might arise. Further, that those natural resources and petroleum are already throttled down to a fraction of their prevailing capacities, and that there can be no sound economic reason for "buyer hysteria" in any of those fields.

■ ■

S. C. Meter Association Holds Monthly Meeting

At the October meeting of the Southern California Meter Association, held in Huntington Park, Calif., the feature paper read was "Pulsating Gas Flow in Orifice Meter," by R. E. Morter, Industrial Fuel Supply Co., Los Angeles. The paper covered detecting pulsation, ascertaining pulsation magnitude, and errors caused in metering due to pulsation and mitigation. Discussion of the paper was led by T. K. M. Smith, Industrial Fuel Supply Co.; F. E. Latham, Union Pacific R. R. Co., and H. H. Wallander, The Texas Co.

Two motion pictures, "Football Highlights of 1938" and "Big Fish," were shown through the courtesy of the Tidewater Associated Oil Co. Other entertainment was provided by the Natural Gas Equipment Co.

■ ■

Waynesboro Co. Remodels Office and Display Rooms

Remodeling of the headquarters of the Waynesboro Gas Co., Waynesboro, Pa., was recently completed. The new display rooms and offices are about three times larger than before, are gas heated, and four apartments on upper floors have been equipped with all-gas kitchens.

A public open house was held after the building's completion with Manager H. Wayne Thompson acting as host, and the Waynesboro *Record Herald* published a special section in honor of the renovated building.

■ ■

New Pipe Line Brings Gas To Morro Bay, Calif.

The Santa Maria Gas Co., Santa Maria, Calif., has recently begun construction of a natural gas pipe line between San Luis Obispo and Morro Bay, Calif. According to R. E. Easton, president of the company, the project involves the expenditure of about $55,000. In the original agreement for the construction of the line, the company guaranteed to have natural gas service in Morro Bay by Christmas, but Mr. Easton states that the job will be completed at least a month ahead of schedule. The Midland Construction Co. of Avenal is building the line.

Natural gas will replace the butane gas previously used, and will be distributed to the customers in the city through the 3-in. mains formerly used for butane. The Santa Maria company is now making a survey to determine what appliance adjustment is necessary for making the changeover.

■ ■

Porcelain Enamel Institute Holds Fourth Annual Forum

More than 200 members of the porcelain enamel industry, together with representatives of manufacturers in such allied lines as gas and electrical appliances, iron and steel, chemicals, and signs, attended the Fourth Annual Forum of the Porcelain Enamel Institute, October 18-20, at Ohio State University, Columbus. The program, which covered a wide variety of practical enameling shop problems, attracted registrants from all sections of the country, as well as visitors from Canada, Brazil, and India.

The opening session consisted of a symposium on the fine grinding of enamels, and another discussed architectural enameling. "Drawing Compounds," the "Use of Softened Water in Cleaning and Pickle Room Practice," "Inspection, Packing and Field Problems of Porcelain Enameled Products" and a paper which urged "that American prosperity depends on a multiplication of the nation's assets through raising the standard of living rather than on the division of national income by means of legal and political restrictions" were subjects that highlighted the sessions of the three-day gathering.

■ ■

Avenal, Calif., Students Will Learn To Cook the CP Way

Students in the Avenal, Calif., High School will this year have an opportunity to secure first hand information as to the many advantages of the CP range. This has been made possible through the installation of six Magic Chef CP ranges, as part of a modernization program for this department carried out during the past summer by C. R. Annin, principal of the school, and Marie Pratt Grady, instructor of the department. Installation of the equipment was made by the Coast Counties Gas and Electric Co., who have been active in pushing the CP Range Program throughout their entire territory.

This department is now one of the most modern domestic science classrooms in the San Joaquin Valley, according to Fred Hix, West Side division manager of the Coast Counties Gas and Electric Co., under whose direction details of the installation were carried out.

■ ■

Peoples Gas Light Opens New Branch Office

The Peoples Gas Light and Coke Co., Chicago, Ill., recently opened a new branch building at 4829 S. Ashland Avenue, in the Town of Lake community. During the opening day Jack Finn, manager of the new branch office, presented gas toasters to the first 2000 customers.

The outside of the building is cream-gray with red and metal trim, and is lighted at night by floodlights. Windows are designed to allow a view of the entire office as well as the merchandise displayed.

JOHN ZINK BURNERS

SOME REASONS WHY You Can't Beat a JOHN ZINK FLOOR FURNACE

It is Neatly Installed.

Very Efficient . . . Assures Low Gas Bills.

Rapid Air Circulation makes for Uniform Air Temperature.

Sturdy, Enduring Furnace . . . Made of Heavy Materials . . . 50,000 B.t.u. Size Weighs 156 Pounds.

Large Combustion Chamber Extending the Length of Furnace, Producing Warm Air Throughout the Register. Does not Overheat.

Silent Heat.

Wide Air Passages Make Possible Light Air Hood for Ease of Removal in Cleaning.

First Cost is Low.

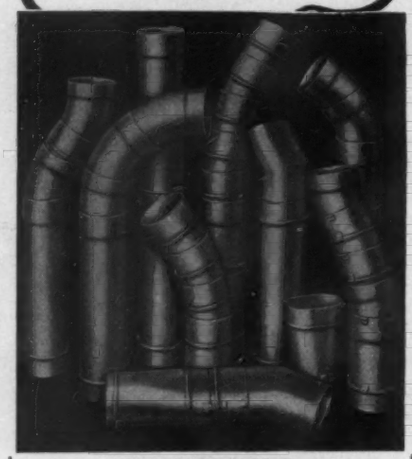
Fool-proof Operation—No Service Calls.

JOHN ZINK BURNERS—Tulsa-New York

Tulsa Plant — 4401 South Peoria Ave.

New York—342 Madison Ave.

ELIMINATE CONDENSATION TROUBLE



VITROLINER
—the permanent chimney lining that totally eliminates chimney deterioration caused by acid-bearing moisture deposited by all types of fuel. Made of Armco Ingot Iron, vitreous enameled both inside and out.
Also manufacturers of Condensation Eliminator and Howle Heat Extractor. Write for free condensation folder and price list.

CONDENSATION ENGINEERING CORPORATION
2515 Archer Avenue - - Chicago, Illinois

SIMPLEX PIPE

7,000,000 FEET OF MONO-CAST DOUBLEX

Mono-Cast Doublex Simplex Pipe is giving highly satisfactory service in transmission and distribution of gas, oil, gasoline, water, etc.. throughout the United States and in foreign countries. It has set a new standard for Cast Iron Pipe in fields of super-service. Write for literature.

AMERICAN CAST IRON PIPE CO.
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Helium-Bearing Reserves Leased By Bureau of Mines

TO supply its Amarillo, Texas, plant with helium-bearing natural gas, the Bureau of Mines has purchased all gas rights in 50,000 acres covering the Cliffside structure, the best source of supply of gas yet discovered for helium extraction, according to a Bureau of Mines news release. On the basis of a conservative estimate, the Cliffside structure contains at least 100,000,000,000 cu. ft. of recoverable natural gas of 1.8 per cent helium content, which is equivalent to a reserve of 1,800,000,000 cu. ft. of helium, or approximately 200 times the average annual production during the last 10 years. In the period from 1929 to 1939, during which the Amarillo plant produced about 90,000,000 cu. ft. of helium, the average rock pressure of the wells on the Cliffside structure declined only about 2 per cent and is now more than 700 lbs. per sq. in.

The government at Amarillo controls an entire geologic structure which it can operate as a unit in accordance with best engineering principles. The entire properties, including plant, gas acreage, wells, and pipe lines, are operated by Bureau of Mines employes, selected from Civil Service registers.

In addition to the resources of helium-bearing natural gas in the Cliffside structure, the government has two helium reserves in Utah which are being held for future needs. These comprise public lands that were withdrawn from entry after helium-bearing gas was found in wells drilled upon them.

■ ■

Guarantee of Natural Gas Spurs Building Program

The spur to new residential building construction that accompanies the guarantee of gas service prompted the organization of the Frank M. Pierson Natural Gas Corp. in Terre Haute, Ind., last July.

Mr. Pierson is interested in the Pierson Lumber Co., of Terre Haute, that has been furnishing lumber for homes in the new subdivisions of Terre Haute, but the unavailability to those districts of the manufactured gas that is used in the city itself was retarding sales. Hence, Mr. Pierson arranged with the Kentucky Natural Gas Corp., whose main natural gas line runs nearby, to supply the needs of the new district. He formed his company among local men and applied to the Public Service Commission for a permit. Authority was granted and laying of mains will begin early in November.

The new system will likely be far enough along by the end of the year to permit serving subdivision residents.

■ ■

30-Mile Michigan Pipe Line Augments Big Rapids Supply

Work on the new 30-mile natural gas pipe line that connects the Austin and Clare fields and that will augment the gas supply of Big Rapids, Muskegon, Muskegon Heights and North Muskegon, Mich., was completed the early part of October, according to Harry J. Babel, superintendent of the American-Michigan Pipe Line Co., of Big Rapids.

The line involves a gathering system of about 12 miles, exclusive of well lines, on the Clare end. The main line and gathering lines are 4½-in. steel pipe, all welded. Well lines are 3½-in. At the present time there are 15 wells tied into the system, and more wells will be drilled next year.

A field pressure of 600 lbs. is carried to the terminal, where the 4-in. line ties into an 8-in. line. From that point a pressure of 3000 lbs. is carried on the 55 miles of 8-in. line to Muskegon city limits. No compression is used on any of this system to date.

The 4-in. line was constructed by United Light and Power Engineering and Construction Co., of Davenport, Iowa.

■ ■

Natural Gas For Houma, La., Expected by December

A natural gas distributing system is being constructed for the city of Houma, La., and it is expected that part of the city will be served by December 1 and that the entire system will be in operation by January 1, according to T. Baker Smith, city engineer. It will be municipally operated.

Cast iron pipe to be laid will consist of 5075 ft. of 6-in.; 46,450 ft. of 4-in.; 126,750 ft. of 2-in., and 112,500 ft. of 1¼-in.

The gas will be supplied from the Lake Long field and will be delivered to the city gate by Williams Brothers, from where it will be picked up by the city and distributed to consumers through the municipal plant.

Approximately 1500 domestic consumers have applied for service up to the present time, and it is anticipated that there will be an additional 200 new applicants each year for the next five years.

Brown & Root, Inc., of Houston, Texas, are the contractors on the job.

■ ■

Eldorado, Texas, Receives Natural Gas Service

Natural gas service has recently been made available in Eldorado, Texas, by the Rio Gas and Power Co., San Antonio, Texas. The gas comes from wells in Schleicher County owned by the Cooper Gas Co., and is brought to the city through a pipe line constructed by the Rio company, which has also laid the city mains in a loop system to provide a dual supply for continuous uninterrupted service. Approximately 150 consumers have contracted for gas service from the Rio company, which plans to open an office soon in Eldorado.

Rates are $2 per 2000 cu. ft.; 80 cents per 1000 cu. ft. for the next 3000; and 70 cents per 1000 for the next 5000.

The beginning of natural gas service in Eldorado was observed by the burning of a large gas flame at the pipe line outside the city limits.

■ ■

Large Gas Well Drilled In Central Wyoming

A gas well producing about 5,000,000 cu. ft. of gas daily from 315 ft. has been drilled recently by the Albert Dome Syndicate in Carbon county, south central Wyoming. At 247 ft. the well, named the No. 1 Boeke, flowed 3,000,000 cu. ft. daily, making one of the largest flows on record from so shallow a depth. A flow of around 5,000,000 cu. ft. was encountered at 250 ft. Gas from both horizons is odorless, tasteless and non-inflammable, and first analyses show it to contain carbon dioxide, oxygen and nitrogen.

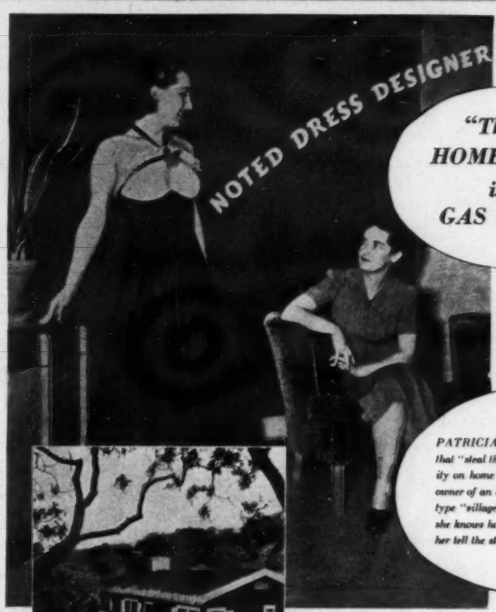
■ ■

New Semet-Solvay Oil Still

Commenting on the recently announced start-up of the Briar Hill Coke Plant of the Youngstown Sheet and Tube Co., Youngstown, Ohio, officials of the company disclosed last month that arrangements have been completed to install a Semet-Solvay light oil stripping still equipped with the latest improvement for continuous removal of crude residue from the light oil.

P.C.G.A. PREVIEW

COOPERATIVE LOAD-BUILDING


NOTED DRESS DESIGNER SAYS:—
"The Model of HOME EFFICIENCY is Modern GAS EQUIPMENT"
PATRICIA PERKINS (she designs gowns that "steal the party!") speaks with authority on home management too. As designer-owner of an unusual, new Swedish peasant-type "village" near her Los Angeles home, she knows how to hold upkeep down. But let her tell the story . . . . . .

Although she started her business only five short years ago, Patricia Perkins is today an international stylist, employing 300 persons. Carrying her designing genius into home construction, she has equipped her Swedish Village houses throughout with gas appliances, and—for "atmosphere"—covered them with sod roofs.

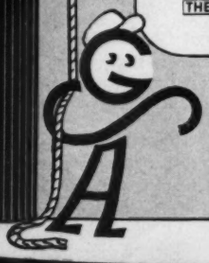
"NATURALLY, I installed *gas* equipment in my income-homes," explains Miss Perkins (Mrs. Maurice J. Fine in private life). "Tenants today demand efficiency *plus*. With gas—cooking is quick, clean, positive. Automatic gas water heating gives real meaning to that word, 'hot' on the faucet. Gas house heating provides 'tailor-made' weather And, topping all, gas assures real eye-on-the-penny economy." ☆ Why not place *your* home on the sunny crest of comfort? Your Gas Company or appliance dealer offers prices and terms to fit a "bedrock" budget.

AT S. F. WORLD'S FAIR . . . See the complete, $150,000 Gas Exhibit—Homes and Gardens Palace, Treasure Island.

LET GAS DO THE 4 BIG JOBS

THE MODERN FUEL

COOKING • HOUSE HEATING • WATER HEATING • REFRIGERATION



"I'M RINGING DOWN THE CURTAIN on 1938-'39 domestic gas sales messages, ending in December. These 21 advertisements, featuring interesting personalities, have been enthusiastically received. The Committee will soon announce plans for the new year."

P. C. G. A.
H. L. Farrar, President
Clifford Johnstone, Managing Dir.

NOVEMBER 1939

COMMITTEE
A. C. Joy, P. G. & E.
J. S. Spaulding, So. Calif. Gas Co.

INDUSTRY *Personalities*

William H. Locke, vice president and director of United Natural Gas Co., Oil City, Pa., and its affiliated companies, was recently elected president of the Pennsylvania Gas Co., Warren, Pa., to succeed the late Benjamin H. McLachlan. Mr. Locke was graduated from Penn State University in 1917 and immediately joined United Natural, whom he has served continuously with the exception of two years when he was in the World War and a year and a half when he served the United States government in the office of the commissioner of internal revenue.

C. A. Covey, formerly representative of the Peoples Natural Gas Co. at Gowrie, Iowa, is being transferred to Paullina where the company is extending its lines. Mr. Covey's assistant, **Oscar Anderson**, is also being transferred to Paullina. **Ed Meehan** is scheduled to replace Mr. Covey at Gowrie.

A. G. Beisenherz, formerly secretary and treasurer of the Missouri Gas and Electric Service Co., Lexington, Mo., has recently been elected president and general manager of the company to succeed the late O. H. Weddle. Mr. Beisenherz joined the company in 1917 as meter reader, and since that time has held the positions of cashier, assistant office manager, chief auditor, assistant treasurer, and secretary-treasurer. **Murray Boogher** was promoted to the position held by Mr. Beisenherz before his appointment to the presidency.

N. Earl Smith has recently been transferred from the Norman, Okla., office of the Oklahoma Natural Gas Co. to El Reno, Okla., where he replaces Mrs. Pearl Putnam, who was transferred to the Oklahoma City office of the company.

George Wells, for eight years supervisor of the appliance department of the Gas Service Co., Topeka, Kan., has been promoted to new business manager.

James G. Montgomery, Jr., chief geologist and superintendent of production of the United Natural Gas Co., Oil City, Pa., and its affiliated companies, was recently elected vice president in charge of geology. He has been with the United Natural company since 1925, having previously been associated with the Empire Gas and Fuel Co., Bartlesville, Okla., and the Hope Natural Gas Co., Pittsburgh. He is a graduate of the University of West Virginia. Other changes in personnel include the appointment of **Anson C. Burwell** as vice president in charge of engineering; **D. E. Conway**, chief geologist, and **George F. Gearhart**, chief engineer.

Robert C. Tuttle, vice president and director of the Atlantic Refining Co., Philadelphia, Pa., has recently been elected president of the Keystone Pipe Line Co. and the Buffalo Pipe Line Corp., Philadelphia, Pa. Both are subsidiaries of the Atlantic Refining Co. Mr. Tuttle entered the employ of the Atlantic Refining Co. at the age of 17 as a stenographer. In 1931 he was elected a vice president after serving as assistant manager and manager of the marine department.

E. F. Monroe, general superintendent of the Durham Gas Co., Durham, N. C., has been recently appointed smoke abatement engineer for Asheville, N. C.

Wesley M. Elberty, for 26 years chief clerk of the Altoona, Pa., branch of the Peoples Natural Gas Co., retired recently. He had been in the company's employ for more than 32 years. **W. Harold Leap** has been appointed to succeed Mr. Elberty.

William Exner, formerly Lake Geneva, Wis., district sales supervisor of the Wisconsin Power and Light Co., has been made manager of the company's office at Delavan. He succeeds **McKinley Hodge**, who has been appointed traveling sales representative.

Don G. Kappelman recently resigned as gas utilization and sales engineer of the Peoples Gas Light and Coke Co., Chicago, to accept the post of vice president of Condensation Engineering Co. and an affiliated company, the Howle Co., of Chicago, manufacturers of a full line of gas-fired heating equipment, a condensation eleminator, the Howle heat extractor and a flue connection called Vitroliner.

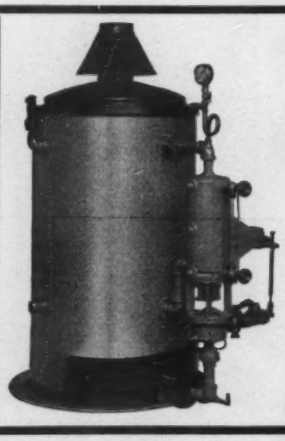
Mr. Kappelman became associated with the Peoples Gas Light and Coke Co. in 1933 following a long term of employment with Middle West Utilities Co. as gas engineer in the operating department, in which position he had charge of the construction of several gas plants including one of the first butane-air plants ever to be constructed. He also operated numerous gas properties of this company. For a two-year period prior to joining Middle West he was an evaluation engineer with American Appraisal Co. He attended William and Mary College, where he majored in chemistry.

E. M. Tharp, vice president of the Ohio Fuel Gas Co., Columbus, Ohio, recently addressed the Central Ohio Personnel Association at its fall meeting. His subject was "What Top Executives Expect from Personnel Activities."

M. K. Wrench, formerly with the Savannah Gas Co., Savannah, Ga., has been appointed supervisor of gas production of the Metropolitan Utilities District, Omaha, Neb., filling the vacancy caused by the death of George Summers. Mr. Wrench has been in gas production work for the past 20 years.

H. S. Hicks, business manager of the Ottawa, Kan., branch of the Gas Service Co., has been transferred to St. Joseph, Mo., where he will hold the same position. He has been with the company since 1919.

At the same time **R. O. Pitman** was transferred to Kansas City as special commercial



INDUSTRIAL GAS BOILERS

Plain tubular . . . . . ¾ to 10 H.P.
Water Leg tubular . . 5 to 45 H.P.
HE Flueless . . . . . 1 to 18 H.P.

ASME Code for 100 lbs. S.W.P., also for higher pressures.
Non-electric Low Water Cut-offs for all types of boilers.

P. M. Lattner Mfg. Company
CEDAR RAPIDS IOWA

For POSITIVE FLOW-CONTROL of gas, oil, water, steam, and air at MINIMUM COST, specify CRANE-QUALITY valves, fittings, fabricated pipe, and piping accessories.

CRANE

VALVES • FITTINGS
PIPE • PLUMBING
HEATING • PUMPS

CRANE CO., GENERAL OFFICES: 836 SOUTH MICHIGAN AVENUE, CHICAGO
NATION-WIDE SERVICE THROUGH BRANCHES AND WHOLESALERS IN ALL MARKETS

Preview of coming campaigns by

P·G·and E·

PACIFIC GAS AND ELECTRIC COMPANY

GAS APPLIANCE SOCIETY OF NORTHERN CALIFORNIA

FALL GAS HEATING CAMPAIGN

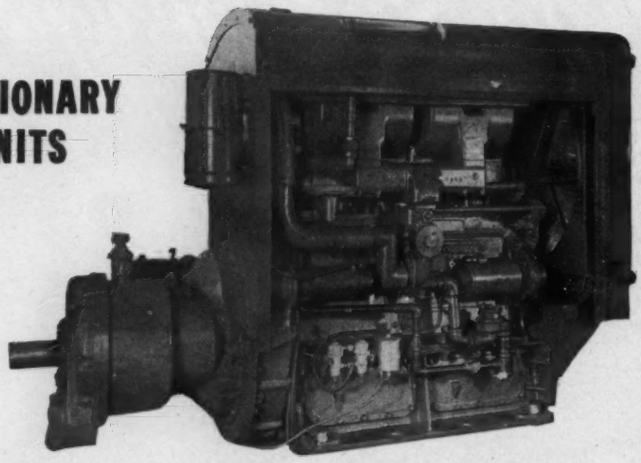
This is being written in early October and already we have seen a good many furnace-laden delivery trucks backed up to sidewalks and building entrances. Which shows how even a short blast of cold, rainy weather will start people thinking and doing something about winter comfort. Later on, when this is published, the weather will be even more on our side, and then, too, the P. G. and E. will begin its fall campaign of gas heating advertising. What happens thereafter will be up to you. If you believe in following time-tested methods you will plan your advertisements so that our advertisements and yours will compliment each other—then arrange to have them published side by side. You will have already received advance proofs of our advertisements and you can get the publication dates by calling your local paper. Do it today—now!

WFR 211-1139

DEALERS: By watching this page from month to month you can keep informed of sales promotional campaigns to be sponsored by the Pacific Gas and Electric Company and the Gas Appliance Society. Detailed information will be supplied, as usual, through the mail. If such information is not received, call our local office or write Gas Appliance Society, 1355 Market Street, San Francisco, California.

ENSIGN CARBURETION EQUIPMENT

FOR STATIONARY POWER UNITS



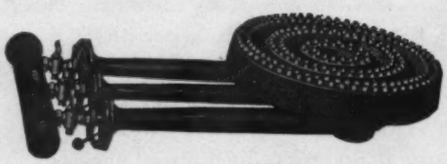
Suitable for use with Natural or Manufactured Gas. ENSIGN Gas and Combination Gas and Gasoline Carburetion Equipment is standard with all leading engine manufacturers.

ENSIGN CARBURETOR CO., LTD.
LOS ANGELES · DALLAS · CHICAGO

GET PERFECT COMBUSTION AND GREATER EFFICIENCY WITH JOHNSON'S LOW COST

60BCE TRIPLE ATMOSPHERIC GAS BURNER

The Johnson Venturi Air Mixer and Johnson's patented design produce better work on ALL types of gas! Johnson's patented direct jet regulators assure easy, accurate adjustment and greater economy! The perfect combustion of the 60BCE gives a more intense heat on less gas, and makes it ideal for all open flame work. All 3 burners operate independently. Send for FREE catalogue now!



JOHNSON GAS APPLIANCE CO.
Cedar Rapids IOWA

GAS—810 South Spring Street, Los Angeles, California

Yes! SEND ME GAS

for ☐ 3 Years at $2.00

SUBSCRIPTION RATES: United States, Canada, Mexico and Central American countries (in advance), three years $2.00; all other countries, $3.00 per year.

Name.....Position.....
Company.....
Address.....
City.....State.....
☐ Check enclosed ☐ Send bill

representative in the new business department of the Kansas City Gas Co. Mr. Pitman had had charge of sales for the St. Joseph branch of the Gas Service Co. for a number of years.

Kenneth Gallant, for the past three years Shelby, Ohio, manager for the Ohio Fuel Gas Co., has been transferred to the company's office at Columbus. Mr. Kohler, formerly at Marion, Ohio, will succeed Mr. Gallant at Shelby.

Paul Skinner, employe of the Northern Natural Gas Co., has been transferred to the company's Palmyra, Neb., station, replacing Fred Keller, who was sent to the company's plant at Ogden, Neb.

T. C. Roderick, general manager of the Fort Dodge Gas and Electric Co., Fort Dodge, Iowa, recently observed his tenth year in that position. He has been in utility service for 40 years. The Fort Dodge company has been in operation 33 years, and observed its third of a century anniversary in September.

J. P. McDermitt, district manager for the Peoples Natural Gas Co. at Kasson, Minn., has been transferred to Jackson, where he will fill the same position. **D. A. Sears**, maintenance man at Kasson, has also been transferred to the Jackson office. At Kasson, **Chet Osborne**, formerly Mr. Sears' assistant, has been made maintenance man. These changes were effected because of shifting the company's district headquarters from Kasson to Jackson, a move made necessary by the large number of new towns receiving service in southwestern Minnesota and northwestern Iowa. The company's new 240-mile pipe line from Sioux City to Minneapolis has made natural gas service available in this territory.

A. E. Englebright, for many years superintendent of gas operations in the Pacific Gas and Electric Co.'s North Bay Division, with headquarters at San Rafael, has taken a position in New York with the Electric Bond and Share Co. as consulting engineer. He studied engineering at the University of California, and upon leaving college went immediately to work for the P. G. and E., having been with that organization for 17 years.

Ned Duncan, commercial salesman for Mississippi Power and Light Co., Vicksburg, Miss., was recently promoted to the position of assistant to division manager. Mr. Duncan has been with the company 10 years.

Fred J. Hatch, advertising executive with the Wisconsin Public Service Corp., Green Bay, Wis., has resigned from that position to join the advertising organization of Don H. Stringer and Associates, Milwaukee and Chicago. In addition to having charge of Wisconsin sales, Mr. Hatch will devote some time to appliance advertising in both offices of the advertising company.

Donald P. McDonald, manager of the appliance division of the Consumers Power Co.'s Owosso, Mich., district, has been transferred to Battle Creek, where he will hold a similar position. **D. P. Draper**, appliance superintendent at Grand Rapids for the past 12 years, will succeed Mr. McDonald.

T. J. Kelly, division manager of the Northern Indiana Public Service Co., Fort Wayne, Ind., has recently announced the appointment of **Robert P. Hale** to the position of assistant district sales supervisor. Mr. Hale was previously in the company's accounting department. He replaces **Robert L. Kaade**, who was made district sales supervisor of Plymouth, Ind.

Carl J. Westberg, formerly sales supervisor of the Springfield Gas Light Co., of Springfield, Mass., has recently been appointed assistant sales manager. The position of sales supervisor has been filled by **William Higgins. Thomas J. Lyons,** sales manager, has returned to his office after an illness of five months, it was reported by Charles G. Young, general manager.

Jerry Baremore, assistant manager of the Arkansas-Louisiana Gas Co., Arkadelphia, Ark., has been appointed manager of the company at Gurdon, Ark., to succeed Stanley Grice.

H. R. Masker, formerly connected with the Associated Gas and Electric Co., Easton, Pa., has been appointed comptroller of the Pavilion Natural Gas Co., Pavilion, N. Y.

George Light, director and former vice president and general manager of the Dayton (Ohio) Power and Light Co., recently celebrated his 80th birthday. Mr. Light joined the company when he was 16, and was in active service until his retirement three years ago. During his 64 years with the company he supervised the laying of approximately two-thirds of Dayton's gas system.

At the October 5 meeting of the board of directors of the Sprague Meter Co., Bridgeport, Conn., **Elwood H. Roseberry** was unanimously elected vice president. Mr. Roseberry has been serving as Los Angeles branch manager since October, 1928, and will continue to maintain his office at Los Angeles. He is a graduate of the University of Pennsylvania Engineering School, class of 1913, with a degree of B. S. in mechanical engineering, and is a member of the Sigma Nu national fraternity.

Martin R. Klitten of the McCarty Co., Los Angeles advertising agency, has been elected president of the Southern California Chapter of the National Industrial Advertisers' Association.

Manufacturer Procedure in the Development of A.G.A. Approval Requirements—Association of Gas Appliance and Equipment Manufacturers. A 13-page booklet outlining the reorganization of committees dealing with A. G. A. Laboratory matters. C. W. Berghorn appointed secretary of the manufacturer members of all A. G. A. Laboratory subcommittees on approval requirements. The booklet outlines the procedure followed by the various product groups or divisions of A. G. A. E. M. for handling matters coming before a subcommittee on approval requirements. Lists the membership of the A. G. A. E. M. committee on laboratory activities and of the various approval requirements committees.

Henry M. Bugler, of the Metropolitan Branch district sales force of the Brooklyn Union Gas Co., Brooklyn, N. Y., led all district salesmen in total commissions in August. This was the third time in four months that Mr. Bugler headed the "Big Ten" list.

H. T. Hamilton, the first office boy for Carnegie Bros. & Co., early predecessor of Carnegie-Illinois Steel Corp., 52 years ago, recently retired as treasurer of the Carnegie Natural Gas Co., Pittsburgh.

Following the advancement of **Wallace M. Chamberlain** to the position of general

MUELLER GAS DISTRIBUTION EQUIPMENT

The time-tested Mueller line includes Mueller Evenflow Service Regulators, Gas Stops, Service Stops, Stove Stops, Drilling and Tapping Machines, service boxes, meter trims and similar equipment. Write for description and prices.

MUELLER CO., Los Angeles, Calif.

Factories: Decatur, Ill.; Chattanooga, Tenn.; Los Angeles, Calif.; Sarnia, Ont.
Branches: New York and San Francisco

REDUCES 100 POUNDS TO MEDIUM OR LOW PRESSURE

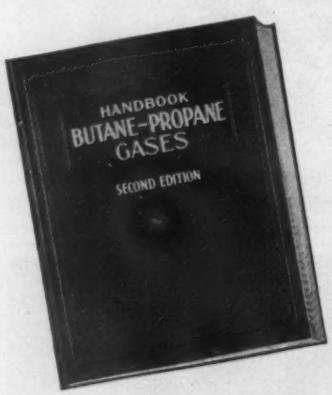
Fulton Toggled
Reducing Regulator

The tank or transmission line may carry 100 pounds or more of pressure and you can reduce it to medium or low pressure in your distribution system with the Fulton Toggled Reducing Regulator. Can be adapted for either natural or manufactured gas. Also for by-product coke oven gas. For reversing furnaces, equipped with oversize valves. Gives definite and sure control. Circular 2573, on request.

The CHAPLIN-FULTON MFG. CO.

28-40 PENN AVE. CF PITTSBURGH, PA.

HANDBOOK BUTANE-PROPANE GASES



415 Pages

CONTENTS: Semi-Bulk Distribution: Use of Butane in Buses: Combination Propane Operated Utility Plant: Use in Internal Combustion Engines: Design & Installation of Storage: Supply from Petroleum Refineries: Engineering Data on the Lower Olefins: Domestic Appliance Testing and Utilization: Economical Comparisons with Coal, Oil, Electricity, Producer Gas, Manufactured Gas: Town Plants: Manufacture from Natural Gas: Special Uses: Volume Correction Factors: Transportation: Use with other Gases: Analysis & Testing: Properties of Mixtures: Bottled Gas Distribution: Bibliography: Central Plant Directory: Catalog Section.

SECOND EDITION (Revised November, 1938)

$5.00 *Plus Postage*

We pay the postage on orders accompanied by remittance

Published by Western Business Papers, Inc., publishers of

GAS
The NATIONAL Gas Magazine

OIL & GAS Equipment Review, 810 S. SPRING ST. Los Angeles, Calif.

sales manager, **Walter Kurdelski,** formerly refrigeration sales supervisor, has been promoted to assistant sales manager of the Michigan Consolidated Gas Co. at Grand Rapids, Mich. His former position has been filled by **Martin Giaimo,** who has been assistant supervisor. **T. C. Campbell,** who has been in charge of dealer relations, is now assistant refrigeration sales supervisor.

Jim Davisson, formerly chief invoice clerk in the Lone Star Gas Co.'s purchasing department, has been transferred to the new business department of Community Natural Gas Co. and Texas Cities Gas Co., Dallas, as chief clerk under the supervision of **Carl L. Trevitt,** merchandise manager. Mr. Davisson's transfer was announced by **Ben R. Newbery,**Lone Star purchasing agent.

Other changes in Lone Star personnel are: **Cecil Young,** warehouse clerk for the Dallas shop department, has been made storekeeper of the Dallas pipe line district, headquarters at Irving. He succeeds **E. C. Mishou,** who has a position as assistant instructor of the natural gas study course, University of Kansas extension division. **Jack Graham,** warehouse clerk at Ranger, succeeds Mr. Young at Dallas, and **Henry G. Crowley,** Dallas pipe line district stores clerk at Irving, has been transferred to the warehouse in Dallas.

Phil Johnston, formerly in the Glendive, Mont., branch of Montana-Dakota Utilities Co., has been transferred to the Williston, N. D., division and is living at Wolfe Point, Mont. He replaced Ted Umhoefer who moved to Fargo, N. D.

Will C. Grant, advertising director for Lone Star Gas System, Dallas, Texas, has been named member of the board of directors of the Dallas Better Business Bureau. Another gas man serving on the board is **R. G. Soper,** president, Dallas Gas Co.

Frank J. Reynolds, who has been a member of the new business department of the Gas Service Co. at St. Joseph, Mo., has been transferred to Hiawatha, Kan., where he will do new business work.

Thomas G. Nee, president of the Acme Wire Co., New Haven, Conn., since 1928, and president of the National Electric Condenser Co., has been elected a director of the New Haven Gas Light Co.

L. B. Denning, Jr., vice president and operating manager of the Community Natural Gas Co., Dallas, has announced the appointment of **Charles W. Young** as manager of the new Urbandale subdistrict of the Garland district.

T. H. Stephens, for 40 years in the continuous employ of the Pittsburgh Group, Columbia System, at East Liverpool, Ohio, retired on November 1. He has been manager of district No. 7.

John W. McGurn, city plant foreman of the Bradford and Warren offices of the Pittsburgh Group, has recently attained a 15-year service record.

Harry Bacharach, president of the Board of Utility Commissioners of New Jersey, was elected to the presidency of the National Association of Railroad and Utility Commissioners at the Seattle convention. James W. Wolfe of the South Carolina Public Service Commission was elected first vice president and Ray C. Wakefield, president of the California Railroad Commission, was named second vice president.

Louisiana-Nevada Co. Given More Time for 75-Mile Line

THE Federal Power Commission has recently granted the Louisiana-Nevada Transit Co., Ada, Okla., an additional 90 days, or until Jan. 11, 1940, in which to complete its 75-mile pipe line from the Cotton Valley Field in Webster Parish, La., to Okay, Howard County, Arkansas, and the city of Hope, Ark. The Louisiana-Nevada company stated in its request for additional time that the Arkansas Utilities Commission had not authorized the construction of the line until September 13, thereby delaying commencement of the work, which the Federal Commission originally ruled should be finished by Nov. 13.

The pipe line, which will cost approximately $440,000, will furnish gas to the Ideal Cement Co. at Okay, and to the Hope (Ark.) Brick Works and the Hope Light and Water Co. At the state hearing the Arkansas-Louisiana Gas Co., Shreveport, La., contended that the Louisiana-Nevada line would compete with its line already serving that territory, but its objections were overruled, and the Louisiana-Nevada line allowed.

■ ■

Four Texas Towns Seek Gas Service from Lone Star

The Lone Star Gas System, Dallas, has announced its plans to construct a six-in. natural gas line between Buffalo, Texas, and College Station, in order to serve the towns of Madisonville, Centerville, Normangee, and Leona if the residents of those towns request natural gas service. If the towns do not wish natural gas, the company will build a shorter line, the purpose of which is to connect two dead ends on one of its lines to form a loop, thus insuring uninterrupted service to consumers.

C. P. Nevill, field supervisor for the gas company, stated that should there be a sufficient number of customers in the four towns, the main line and town distribution systems could be completed by January, 1940. He estimated that these would cost about $50,000. Committees in the four towns have been organized to obtain prospective customers for the service.

■ ■

Oklahoma Natural Makes 80,000 Home Calls in 1938

In order to maintain the many phases of its gas service, the Oklahoma Natural Gas Co. in 1938 made 80,000 calls to adjust customers' appliances, inspect heating systems, check for line leaks, and to render other free service to customers, the monthly employes' bulletin of the company announced. During that year 850,000 contacts were made. Total cost of inspections and contacts, including the passing out of 620,000 recipes for use in cooking with gas, was between $65,000 and $85,000.

■ ■

Bridgeport To Extend Lines

Plans for the extension of pressure pipe lines to serve gas to the Long Hill district, five miles from Bridgeport, Conn., have been made by the Bridgeport Gas Light Co. The plans also involve the laying of distributing lines throughout the district. Work is scheduled to begin at an early date.

N. L. Hoff, Gas Engineer For California Utility, Passes

N. L. HOFF

SUFFERING for some time from a rare heart ailment which resulted from an attack of typhoid fever, Norman L. Hoff, gas engineer of the Southern California Gas Co., died October 19, at the home of his brother, Dr. Cecil Hoff, in San Bernardino, Calif., where he was undergoing treatment. He was 34 years old at the time of his death. Mr. Hoff entered the employ of the former Los Angeles Gas and Electric Corp. in 1925, and rose through successive posts in the distribution department of that company to the position of gas engineer. He continued in this capacity when the Los Angeles company was merged with Southern California Gas Co. He was extremely active in affairs of the Pacific Coast Gas Association, serving on any number of technical committees, and making a number of important technical contributions in the field of gas distribution.

■ ■

Engineering Firm Moves

Condensation Engineering Co. and the Howle Co. have moved into a larger plant at 2515 Archer Avenue, Chicago, at which address the main office is located. E. O. Howle is president of the companies.

Safety, Economy and Capacity

SAFETY. Reliance Type "H" and "K" Regulators for service lines can be equipped with internal mechanical relief valve, utilizing main diaphragm to operate relief valve mechanism, allowing excess pressure to escape to atmosphere through center valve carried by diaphragm plates. Relief valve settings can be made over a range between 8" and 30" w.g.

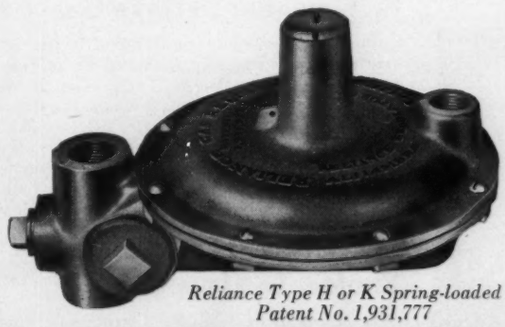
AUTOMATIC SHUTOFF. This feature cen be furnished either with or without safety relief valve. Shutoff valve stops the flow of gas in case of ruptured diaphragm or broken house or service lines, and Regulator remains closed until trouble is repaired. It is then manually reset by pulling upward on copper wire cable attached to under side of cap screw.

ECONOMY. In service lines where dust troubles exist, the valve in Type "H" and "K" Regulators may be changed and the dust can be blown out without removing the Regulator from the line.

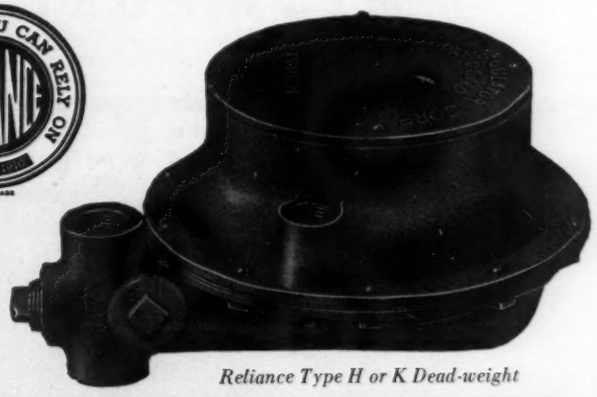
CAPACITY. These Regulators have greater capacity than any others of the same size. They are used extensively in Butane-Propane Air-mixed Systems and in distribution of pure vapor.

Send for Bulletins No. 38 and 41

RELIANCE REGULATOR CORPORATION 1000 MERIDIAN AVE., ALHAMBRA, CALIF.



Reliance Type H or K Spring-loaded Patent No. 1,931,777



Reliance Type H or K Dead-weight

RELIANCE REGULATORS

Standards Bureau Publishes Soil Corrosion Report

A REPORT on soil corrosion studies by Dr. K. H. Logan of the National Bureau of Standards based on the examination of some 1600 specimens of ferrous and non-ferrous materials used for underground pipes and protective coatings, published in October *Journal of Research* (RP 1250), was briefly reviewed in the October issue of the Bureau's *Technical News Bulletin*. Excerpts from the review are as follows:

The specimens were removed in 1937 after exposures of from five to nine years.

The data did not show any marked differences in the corrodibility of ferrous materials made by different processes. However, the nature of the data was unfavorable to the detection of small differences in materials.

The addition of small amounts of chromium, copper, nickel, and some other elements to iron or steel appeared to have no marked effect on the resistance of the alloys to soil corrosion.

Ferrous alloys containing large amounts of chromium had definitely lower rates of loss of weight than the other ferrous materials tested. They also had fewer pits per unit area, but the alloys containing chromium alone may pit deeply.

The addition of nickel to chromium-iron alloys appeared to improve the alloy with respect to loss of weight and depth of pits in soils. Tests of alloy sheets suggest that an alloy containing 23 per cent of chromium, 13 per cent of nickel, and 1.8 per cent of manganese may be less resistant to soil corrosion than an alloy containing somewhat smaller percentages of these elements.

Two ferrous alloys which contained both copper and nickel in considerable amounts resisted soil corrosion better than the other ferrous materials, with the exception of those containing large percentages of chromium. It is difficult to determine from the available data whether the results should be attributed to one or both of the alloying elements.

Copper and its alloys corroded at much slower rates than the commonly used ferrous materials at most of the test sites. The pits on many of the specimens were too shallow to be measured accurately by the methods used. In several soils dezincification affected the specimens containing large percentages of zinc.

■ ■

St. Elmo, Ill., To Have Gas

The city council of St. Elmo, Ill., has recently voted a natural gas franchise to Gorman & Gorman of Pampa, Texas. Gas mains and a distribution system are under construction to convey natural gas from the Daniel L. Burtschi well in Avena township to the city consumers. Sherman and Cummings, owners of the well, will sell the fuel wholesale at the well for approximately nine cents per 1000 cu. ft.

■ ■

Eunice, La., Lets Contract

A contract to furnish a steel pipe line system for distributing municipal gas was entered into recently by the town of Eunice, La., and the Littrell Contracting Co., Opelousas, La. The contract provides for the laying of a main welded steel pipe line for connecting the city system with the supply.

KLIXON *Snap-Acting Gas Valves*
NOW AVAILABLE IN FIVE SIZES

If you want quiet, non-sticking control for your heaters use Klixon Electrically-Operated Gas Valves. Being thermally operated, these valves are free from solenoid troubles—no humming or sticking. Moreover, a natural time delay in their operation prevents chattering during momentary power interruptions.

Available in five sizes—⅜", ½", ¾", 1" and 1¼" I. P. S.—these valves handle all types of gas up to 1000 cu. ft. capacity.

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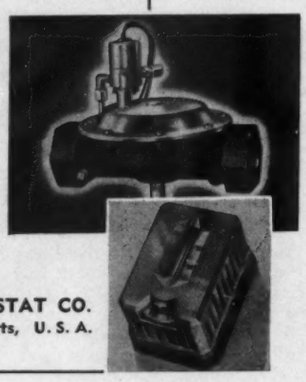
Klixon Gas Valves can be obtained in matched sets including Klixon Room Thermostats—the ideal room thermostats for closer temperature control. Write for complete information.



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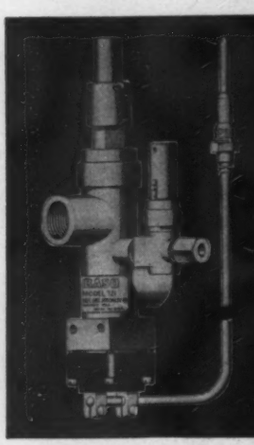

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You can help to reduce the mortality rate of sales. Cultivate all of the people who influence purchases in your markets. Get your story to the men your salesmen *can't reach.* Talk to them in terms of their own self-interest; through the business papers that talk their language.

USE THIS GHOST-GETTER

The crimes committed by the "unreachables" who kill sales because they don't know your story are, like most crimes, due to faulty education. *GAS*, edited for the "unreachables," as well as for the men your salesmen *can see*, provides an economical means of cultivating *all* of the buying powers in the gas utility field.

GAS is invited to the desks and homes of the men who have "arrived" . . . to the shops, offices and homes of those who want to get ahead. These men pay subscription cash to obtain the counsel of editors in whom they have confidence.

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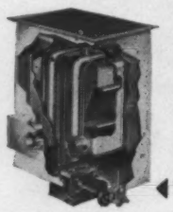

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CURRENT *Reading*

Measuring the Combustibility of Gas-Air Mixtures—F. Rutledge Davis. *Chemical Industries*, Sept. 1939, pp. 289, 290. Describes the Davy Safety Lamp, the Burrell Indicator, and the Combustible Gas Indicator, all of which are of important use in the detection of combustible or explosive gas-air mixtures and in measuring accurately their degree of combustibility.

Hydrocarbon Synthesis from Carbon Monoxide and Hydrogen Over Alloyed Catalysts—I. Rapoport and E. Polozhinteva. *Oil and Gas Journal*, Sept. 28, 1939, pp. 52, 53, 54. Authors draw the following conclusions: Three catalysts have been investigated —NiAl, CoAl, and CoSi. According to the yields of liquid hydrocarbons, first place is occupied by CoAl, the yield of liquid products in this case reaching 175 cc. per cubic meter of gas at a volume velocity of 83. Of the investigated types, i.e., of powder and lentil-shaped agglomerates, the latter is the more active.

Factors Governing Choice of Cooling Towers for Circulating Water — W. H. Winslow, Jr. *Industrial Power*, Sept. 1939, pp. 60-63. Types of towers are described, design formulas and computations are given, and a method of designing towers is illustrated by example.

Natural Gas—Dr. James B. Garner, Senior Fellow of Mellon Institute, in charge of the Institute's investigations in the chemistry and technology of natural gas. *Chemical Industries*, June 1939, pp. 624-632. The early historical background is reviewed, the chemical composition of natural gas is discussed, and pertinent information on the major present day uses is presented. In addition, the article supplies considerable statistical data on natural gas, carbon black, and liquefied petroleum gases.

The Third Year Natural Gas Textbook —Extension Division of the Pennsylvania State College. Price $2.50. This third year textbook will cover natural gas economics, casing and well head pressure control, gathering system, compressor stations, transmission, metering, regulation, distribution, and commercial utilization. Those desiring additional information may address their inquiries to Maynard M. Stephens, supervisor, Petroleum and Natural Gas Extension, Pennsylvania State College, State College, Pa.

Uses and Applications of Chemicals and Related Materials—Thomas C. Gregory; published by Reinhold Publishing Corp., 330 W. Forty-second Street, New York, N. Y. Price $10. Comprehensive, usable reference work for the research director, sales executive, manufacturer, dealer, and others interested in the uses of chemical products. Lists, alphabetically in dictionary style, 5167 chemicals and related materials, giving uses in all major industrial and manufacturing classifications. Many chemicals are listed by common, rather than strict chemical, name; synonyms, and Latin, French, and German translations are given. Among the materials listed are: inorganic and organic chemicals, mineral and organic acids, fine chemicals, drugs, metals, animal and vegetable oils, essential oils, waxes, and other petroleum products and derivatives. The information presented is available nowhere else in such complete form.

Natural Gas Goes Ahead—Thomas R. Weymouth. The *American Gas Association Monthly*, June.

Energy Resources and National Policy —American Petroleum Institute. The report of the Energy Resources Committee to the National Resources Committee. Also contains staff studies on the petroleum and natural gas industries, fuel reserves, substitute fuels and marginal energy resources, phases of technology in the petroleum industry, and conservation.

Photographing Pipe Line Corrosion Important Part of Survey Method—Bill Davis. *Petroleum Engineer*, Sept. 1939, pp. 59, 60, 62. In order to obtain a more definite permanent record of the progress of corrosion on its pipe lines than a word picture would give, a certain company has photographed successfully its line, illustrations of which are given, together with a description of the apparatus used and methods employed.

Combating Electrolytic Corrosion of Gas Well Casing by Insulation—William E. Huddleston. *Oil and Gas Journal*, Sept. 28, 1939, pp. 40, 43. Leakage of stray electric currents was detected on a large number of wells in the Panhandle area of Texas and corrosion of the casing from this source has been determined. Elimination of further trouble has been effected by insulating casing. Methods of detecting and insulation are outlined.

Indicator Diagrams — Air and Gas Compressors. *Power*, Sept. 1939, p. 126. Commonly found compressor troubles can be checked with usual steam engine indicator cards but diagrams must be properly interpreted. The diagrams given were traced from actual cards on large gas compressors having mechanically operated inlet valves and automatic discharge valves; the method of interpreting the tracing is explained.

Mines Bureau Gas Hydrates Study Resumé Combating "Freezing Up" in Pipe Lines—E. M. Frost, Jr. and W. M. Deaton. *California Oil World*, second Sept. issue, 1939, pp. 13, 14, 16-18. A fourth report of the Bureau of Mines investigation of the practices in this field.

Distributed Anode Method Cuts Cost of Cathodic Protection—O. C. Roddey and Lyle R. Sheppard. *Oil and Gas Journal*, Sept. 21, 1939, pp. 84, 85, 158. From tests of various systems of cathodic protection of pipe lines on a five-mile laboratory evolved a per-

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AND TRAFFIC WENT ON AS USUAL

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manent cathod, distributed anode method, incorporating important power savings. This method calls for the placing of ground anodes, carrying much less current and giving a more uniform distribution of pipe to soil potentials, at 37 to 50 ft. intervals, located approximately 25 ft. from the pipe line.

Court and Commission Decisions Affecting the Natural Gas Industry—William A. Dougherty. *American Gas Association Monthly*, June.

The 1939 Minerals Yearbook—Bureau of Mines. An economic review and statistical summary of the mineral industry of the United States in 1938. It reviews current trends in production, consumption, prices, stocks, technologic progress, world conditions and international trade for nearly 100 metal and mineral commodities. Complete final statistics for 1938 are presented throughout the entire volume with the exception of the chapters on bituminous coal, coke, petroleum, natural gas, and natural gasoline, and these chapters contain adequate reviews based on preliminary data. Copies may be obtained from Superintendent of Documents, Government Printing Office, Washington, D. C.; price, $2.

Economics and Sales Possibilities of Gas Engines—D. W. Reeves. *American Gas Association Monthly*, June.

Gas Engine Handbook—A.G.A. Gas Engine Power Committee, D. W. Reeves, Oklahoma Natural Gas Co., Tulsa, Okla., chairman. This handbook, published by the Industrial Gas Section of the A.G.A. through the cooperation of the Pacific Coast Gas Association, contains data and information collected over a period of years by C. Remschel, Southern Counties Gas Co., Los Angeles, Calif., who contributed the major portions of the volume. The 58-page book is well illustrated with photographs, drawings, and tables and deals comprehensively with the development, applications, and operations of the gas engine.

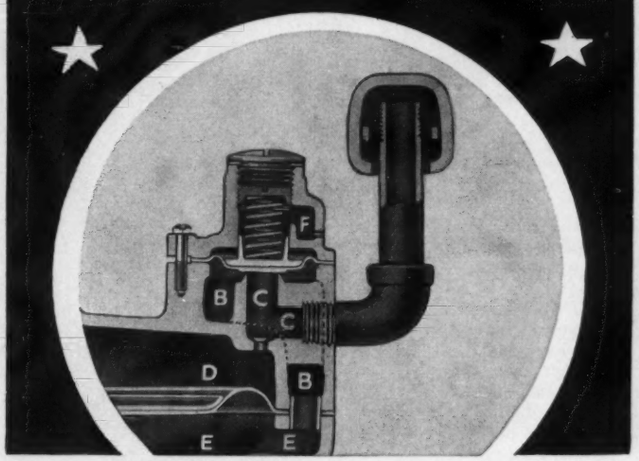
The Fifth Big Job—Air Conditioning a Challenging Opportunity — Charles R. Bellamy. *American Gas Association Monthly*, July-August.

Important Books—Chemical Publishing Co., Inc., New York City. A catalog of technical books covering domestic and imported books on chemistry, physics, mathematics, medicine, metallurgy, machinery, engineering, biology, general science, business, manufacturing, and technical dictionaries. Copies may be obtained by sending stamps to cover postage.

A Bibliography on Cathodic Protection of Pipe Lines—Luis Hilt. *American Gas Association Monthly*, July-August.

Men Must Work—Loire Brophy, employment counsellor (D. Appleton Century Co., New York City; price $1.75). Mrs. Brophy states that a man's first job, no matter what it is, is valuable as training for his all-important second job, which should be carefully chosen as the foundation of his life's career. She explains how to get a job, how employers judge candidates for jobs, either from personal interviews or letter, and why men are fired, stressing particularly the need for an employe's personal and honest introspection periodically. Also included in her vocational guide are a list of qualifications necessary for an executive, and suggestions for how to make the most of any job for self-development and progress.

Available on Models 10 and 30
NEW BUILT-IN SAFETY VALVE



This New REYNOLDS Built-in Safety Valve is used in connection with the long removable spring which insures not only extreme flexibility but remarkable accuracy. The extreme sensitiveness of this Safety Valve makes for a positive release at any predetermined setting. It is not only positive on releasing, but accurately and automatically reseals when normal pressure is restored.

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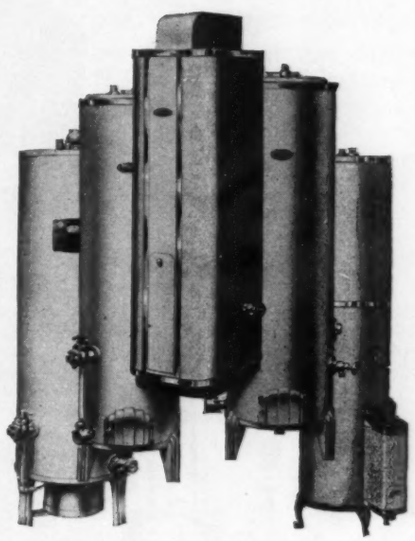

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MODERN *Products*

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Model: L147A.

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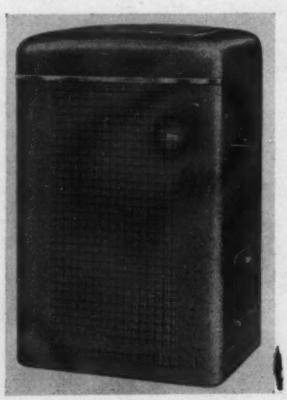
■ ■

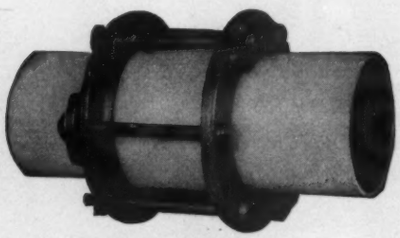
Panelheater

The Howle Co., Chicago.

Models: B-30, B-45, B-60.

Description: One of the features of this new heater is its patented burner through which gas can be throttled from full rating to minimum input without changing flame characteristics. Every heater is equipped with a safety device that insures safe lighting; also with an appliance pressure regulator which maintains constant input of gas. The Howle Co. and its affiliated company, Condensation Engineering Co., manufacture a full line of gas-fired heating equipment, a Condensation Eliminator, the Howle Heat Extractor and Vitroliner, a flue connection.





Collar Clamp

Dresser Manufacturing Co., Bradford, Pa.

Model: Style 41.

Description: For stopping leaks through the threads of screw collars, or couplings. Consists of a few simple, factory-made parts, such as followers, gaskets and bolts, which can be assembled with one tool, a wrench. Advantages claimed: simplicity, speed, efficiency and permanent tightness; unskilled labor can apply the clamp under all normal pressures without interruption of service; clamp can be furnished for either old or new collar. Style 41 ranges in sizes from 4½ in. to 12 in. ID, inclusive. Also made in sizes from ¾ in. to 4 in. ID, inclusive, with malleable followers instead of steel, and designated as Style 4.

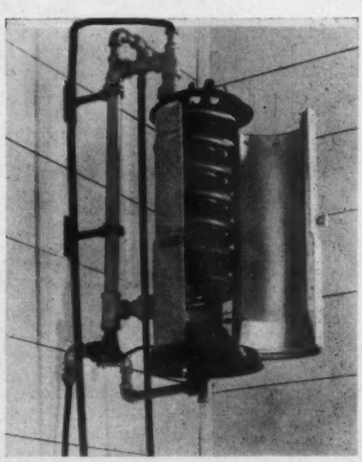
■ ■

Small Water Heater

Little Giant Water Heater Co., Orange, Texas.

Model: "Hotomatic."

Description: This is an instantaneous thermostatic coil heater. It has a side arm attached to it with the tube of a thermostatic valve sticking up inside this arm. The cold or hot water playing on the tube causes the valve to actuate as is desired to heat water. Points claimed by manufacturer: Works on any water pressure; water heats instantly; it cannot explode; cuts gas bill for water heating from 50 to 75 per cent; various sizes heat from 1 to 3 gals. per min. 60°.



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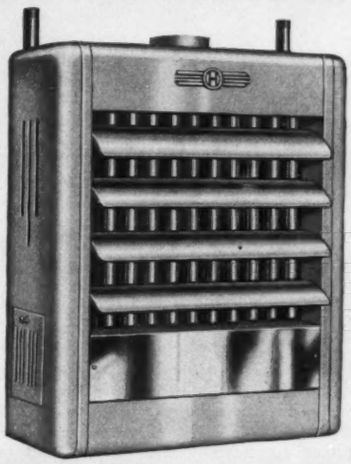

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Every* Active Hour, *Every Day, All Winter

There's a full heating season ahead. Time to line up the stores, shops, offices, garages, restaurants, factories, and warehouses in your territory for gas heat this Winter. Send today for the selling ammunition that will help your men close contracts before cold weather starts. Ten years have proved the ability of Humphrey Gas Unit Heaters to build valuable gas heating loads; ten years have proved the soundness of Humphrey design and engineering. Join the hundreds of gas companies who are making real profits with these proven space heaters. Write for the new 1939-40 Cooperation Selling Portfolio.

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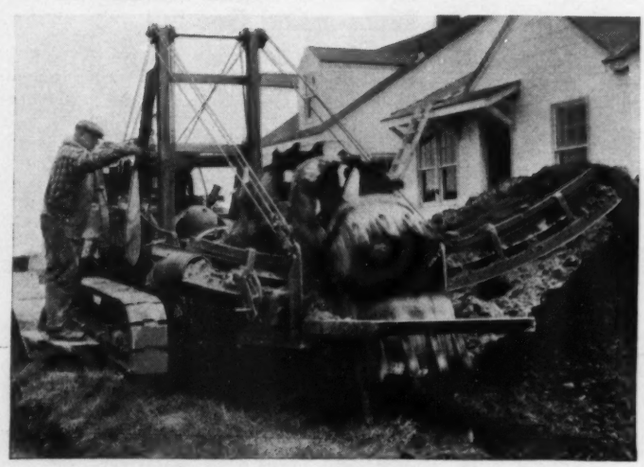

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A.G.A. Laboratories Set New High In Approval Testing

APPLIANCE testing activities of the American Gas Association Testing Laboratories during the past year reached a maximum since their establishment. A total of more than 2800 appliances and accessories were tested at the Cleveland and Los Angeles Laboratories during this period. This represents an increase of approximately 11 per cent over a large advance which had taken place in the previous year. Approximately 50 companies submitted their initial equipment for certification during the year.

While the testing of practically all types of equipment proceeded on an increased scale during the past year, that of gas ranges and central heating appliances was particularly active. The Certified Performance program was no doubt largely responsible for much gas range approval testing. The action taken by the Federal Housing Administration which requires Laboratory approval of all gas appliances installed in buildings financed under its regulations undoubtedly stimulated materially the testing of central heating equipment.

A considerable expansion of personnel was naturally required in order to meet the increased demands made by manufacturers on the Laboratories for approval of their products. The combined Laboratories' staff now totals 94, a 15 per cent increase for the year.

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Fisher Governor Announces New Gas Industry Catalog

Fisher Governor Co., Marshalltown, Iowa, announces Catalog No. 39, a new and more complete booklet for the gas industry, according to P. A. Elfers, sales manager of the company. This new catalog illustrates and describes 75 different regulators, contains installative photos, flow charts, diagrams and tables. Dimensions, working pressures and prices are all given in detail.

Among the new and improved regulators is the Fisher-King Gas Pressure Booster. This regulator is especially designed to reduce leakage from 25 to 50 per cent.

The new Fisher Catalog No. 39 also contains 24 pages of Fisher Capacity Charts to aid in sizing regulators more accurately.

■ ■

Wagoner Gas Co. Granted Authority To End Service

The Oklahoma Corporation Commission has recently granted tentative authority to Charles H. Albers, receiver for the Chicago Bank of Commerce, Chicago, Ill., owner of the Wagoner (Okla.) Gas Co., to discontinue natural gas service there and in Muskogee and Jenks, Okla., on or before November 15. The Wagoner Gas Co. will be given a permanent order authorizing abandonment of service on November 15 if the company can show that an adequate supply of gas is available to the consumers. The Oklahoma Natural Gas Co. is now serving gas to Jenks, and will take over servicing all three properties if permission is granted by the courts and state and federal commissions.

■ ■

R. A. Maloney Chairman Of Heating Council

The first monthly meeting of the Metropolitan Heating and Air Conditioning Council for the 1939-1940 business year was held September 20 at American Gas Association headquarters. The meeting was devoted to a discussion of "Gas Heating for Low Cost Housing." Representatives of Long Island Lighting Co., Queensborough Gas & Electric Co., and Brooklyn Union Gas Co. led the discussion.

The officers for the coming year are: R. A. Maloney, sales manager, Bridgeport Gas Light Co., Bridgeport, Conn., chairman; C. Brezee, sales manager, Long Island Lighting Co., Mineola, N. Y., vice chairman, and H. C. Rohrs, secretary-treasurer.

The Council, now entering its eleventh year of activity, originated and adopted the slogan "Join the Swing to Heating by Gas" which later became a national slogan; prepared a set of rules (the Gasco Installation Guide) for the installation of gas winter air conditioning in new homes. This has now become a national project sponsored by the A. G. A.

■ ■

Restaurant Men Impressed By Gas Industry Exhibit

More than 12,000 restaurant men were attracted to the American Gas Association booth at the Twenty-first National Restaurant Exposition in Chicago, October 2-6, according to Harry W. Smith, Jr., director of the A.G.A.'s industrial publicity.

The latest advances in water heating and sterilizing equipment for public eating places was featured by the slogan that "hot water for restaurants and hotels should be 180°," and the industrial gas section's two-color folder emphasized these five salient points:

1. There is no comparable substitute for gas, nor any superior process for the job of heating large volumes of water or increasing 140° water to 180° temperature.
2. Water at 180° guarantees complete cleaning.
3. Water at 180° guarantees complete sterilization.
4. Water at 180° dries utensils from their own heat.
5. Water at 180° cuts down the need of toweling.

■ ■

Brooklyn Union Preserves 80-Year-Old Gas Bill

A gas bill dated 1859 and issued by the old Brooklyn Gas Light Co., was recently received by Clifford E. Paige, president, Brooklyn Union Gas Co., Brooklyn, N. Y., from the South Brooklyn Savings Bank. The 80-year old bill has been placed in the company's old record collection.

The bill covered 400 cu. ft. of gas consumed at 30 cents per hundred feet—over three times today's rate. Printed on the bill was the notation, "Bills to be paid at the office in Bankable Money. If paid within five days after presentation a discount of five per cent allowed on gas bills. In default of payment within 10 days after the bill has been rendered, the flow of gas will be stopped. Light should not be taken where an escape is perceptible."

■ ■

United Gas Air Conditions New Houston Headquarters

The United Gas Corp., Houston, Texas, has recently announced its plans to move to new headquarters early next year. New general offices will be in the former 10-story Marine Bank Building at Texas and San Jacinto streets in Houston. The building is now being remodeled at a cost of $200,000 and when alterations are completed will be known as United Gas Building. A gas air conditioning system, said to be one of the largest, is part of the new equipment.

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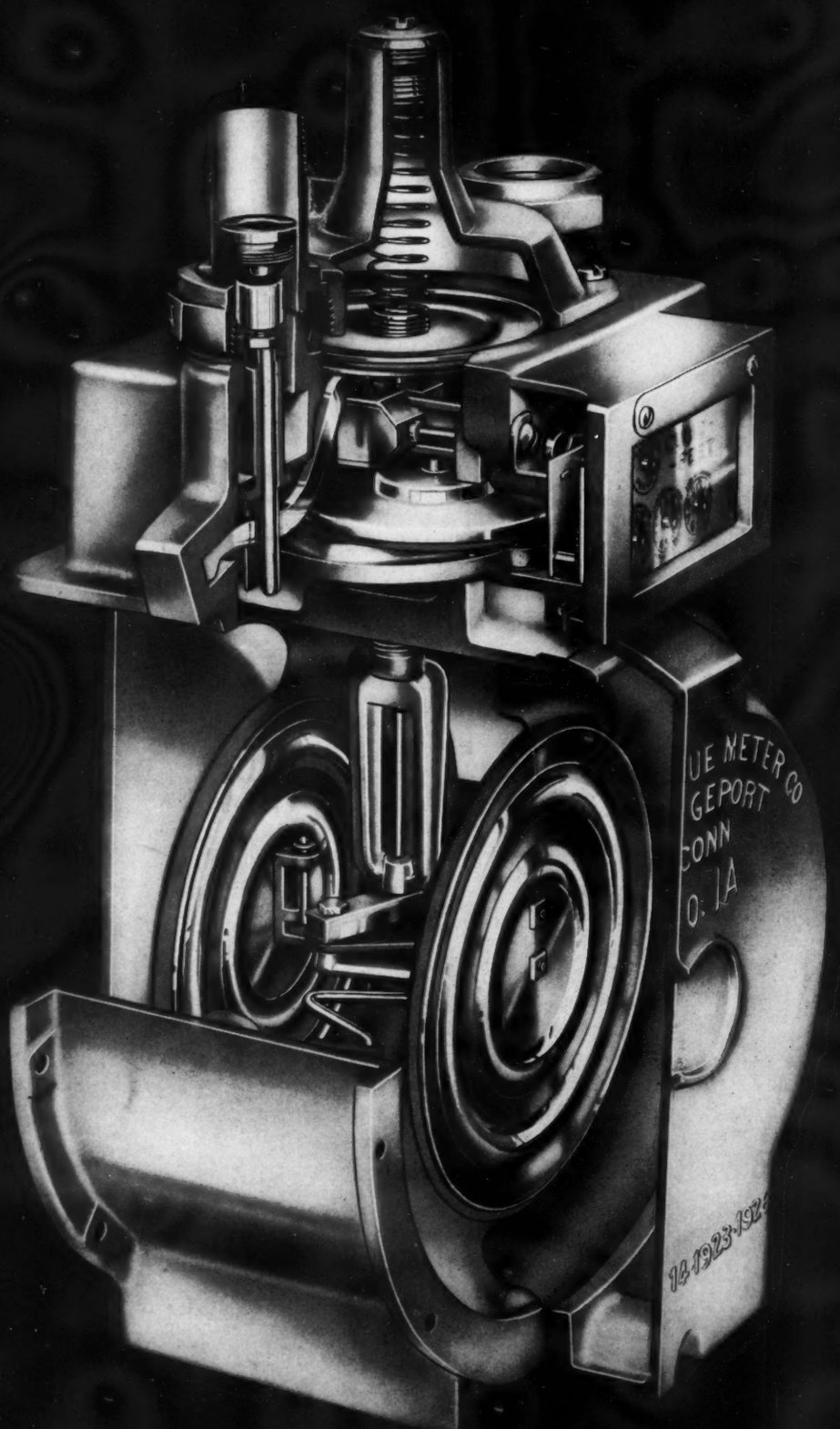

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